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THE PRESIDENT'S ADDRESS*

A PLEA FOR MEDICAL SUPERVISION AND CONTROL OF THE HEALTH AGENCIES OF LOUISIANA

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ALEXANDRIA

I have selected for the subject of my address "A Plea For Medical Supervision and Control of the Health Agencies of Louisiana." In view of the fact that we have recently undergone one of the most strenuous political campaigns in the history of the state, in which the existing order, or state officers, has been repudiated and overthrown, and a new regimen is soon to be established, cannot we, the medical profession of the state, with the aid of the Governor and Legislature, bring about a different plan of administering the health institutions of Louisiana? The State Board of Health, the five Charity Hospitals, the two Hospitals for the Insane, the State Colony and Training School (for feebleminded and epileptics), and the Tuberculosis Sanatorium, constitute one of the largest expenditures of the state's revenues, and probably affects as many citizens, if not more, than any other one department of the state.

That the State Board of Health, the State Hospital and Welfare Board, the Charity and Insane hospitals, have been political foot-balls during the past decade and more, which has reacted to the detriment of the state, the poor and the needy for whom these institutions were created, the general public, and the medical profession, is common knowledge to all, and cannot be denied. No public institution dealing with the public health can function efficiently, economically and scientifically when subject to the vicissitudes of politics. Can any institution be properly administered when the principal recommendations of its executive officer be the ability to secure and deliver the most votes for the administration that happens to be in office at the time, and should he lose this influence at the polls, or fail to collect the "deducts," be summarily dismissed in favor of another who could and would deliver such services? It has been repeatedly charged that to secure a position, even a minor one, in one of our institutions, the person, his family and friends must have "voted right," and have the endorsement of some local "boss" certifying that he is "all right politically." Such has been the method of control and administering of our health institutions in the past.

The public health profession is a specialty of medicine, requiring for its supervision, guidance and administration persons trained in the medical sciences. While it is true that in the practical administration of modern systems of health other scientific fields are drawn upon and freely used, yet it is true that these agencies and their technics contribute to the ultimate end sought; the control and eradication of disease must be built upon the scientific medical discoveries and researches. Further, the success of any plan of administer-

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ing health protection hinges largely, if not entirely, upon the interest, loyalty and leadership furnished through the medical profession. This failing, the system itself fails. It has been told me time without number, in my visits about the state as your president, that the present method of control and administration of our institutions did not have the respect of the medical profession, and that a change was most desirable.

The time now seems particularly opportune, with a new state administration, and when governments, — federal, state and local,—are striving to strengthen and expand their health agencies, for us to put our institutions on a firmer base, to remove baneful influences, and to adhere strictly to the principle that any service so technical as health, and the care for the sick and afflicted, can only be built through the employment of properly trained personnel. In such a struggle, the voice and influence of the medical profession, as expressed through this organization, representing over 82 per cent of the physicians of the state, should have great weight and influence, and should be registered now and at every appropriate occasion. It is an indisputable fact that without the support of the practicing physicians, the Boards of Health and the Charity Hospitals would go on the rocks. Appreciating these facts, we should endeavor to acquaint our executive officers and legislators of the conditions as they exist, and endeavor to influence them, through our Society and profession, to make an effort to raise the level of human happiness and efficiency through the application of scientific discoveries in the field of medicine.

If one is going to build a house he engages a carpenter; if his car does not run he sees an automobile mechanic; if he has dealings with the court he consults his lawyer. Should not the medical profession, as represented by our Society, be consulted concerning the plans, policies and administration of the health problems of the state? We have as one of our health institutions the State Hospital and Welfare Board, composed of laymen, and whose administrator or director is a layman, and this board directs the policies of the Charity Hospitals of the state. No matter how sincere his efforts may be, he does not possess the proper training, previous experience, insight, and point of view so necessary for the proper understanding of this great task. I believe that I express the opinions of the vast majority of the physicians of the state that this Board has not rendered the best type of service, and that it was far from being satisfactory, so much so that the dissatisfaction has gone far beyond the medical profession. A carpenters' union, Shreveport Local No. 146, presented a resolution to the State Federation of Labor at its recent annual convention, which resolution was passed without a dissenting vote, that the Governor-elect and Legislature be petitioned to remove the Charity Hospitals from factional political control. It is a matter of record that a past-president, then president of our Society, Dr. Horton, vainly endeavored to secure medical representation on this Hospital Board, but was denied even an audience with the then Governor (Leche).

Society needs more and more the beneficent and uplifting influences of an expanded, scientific health service, motivated by altruism and a sincere desire to improve mankind. René Descartes, the great French philosopher, said three centuries ago in words that are very applicable today: "If ever the human race is lifted to its highest practicable level intellectually, morally and physically, the science of medicine will perform that service." Webster defines the verb "cooperate" as "acting jointly with others." Theodore Roosevelt, on one occasion when pointing out the need for teamwork and cooperative effort, explained: "The grandest word in the English language is 'together'." That there is a great need for the reorganization of the health facilities of our state is an obvious fact, recognized by people in all walks of life. It is likewise an obvious fact that this task is a stupendous one. The Louisiana State Medical Society wishes to express itself as being ready and willing, yea, even anxious, to cooperate with the new administration,

in both the executive and legislative branches, so that, with the united efforts of all, some plan may be evolved whereby the health agencies of Louisiana may be removed from the uncertainties and upheavals of politics; whereby our institutions and their personnel may be divorced as far as possible from such control; and whereby the medical profession, which has originated all health measures, be permitted to have a much greater control and supervision of this work than has been granted in the past. To this end we offer our services, both as a Society and as individuals, with the view of providing adequate health facilities for our people, in a more equalized, more efficient and more economical manner, and under a system that will reflect credit to the people, the government and the medical profession of our great state.

INTERSTATE ENDORSEMENT

ADDRESS OF THE PRESIDENT*

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It is indeed a privilege and an opportunity to address the Federation of State Medical Boards of the United States—one of the most important and active bodies of medical men in this country.

I have selected interstate endorsement or reciprocity as my subject, because I consider it of great importance in regulating the practice of medicine, and also because it is at this time a paramount issue which confronts this, our Federation. The problem of universal reciprocity is one that has been discussed pro and con for several years, yet there has never been any concerted action toward making it an acceptable and practical plan of operation. At a meeting of the Advisory Council of Medical Education and Licensure, the Committee on Internship and Interstate Endorsement with Dr. J. W. Bowers, secretary of the Indiana board, as chairman, endorsed universal reciprocity. We of the medical profession are in agreement that universal reciprocity is a vital necessity and that its adoption would be an asset to our profession. Most directly interested in this question are the Council on Medical Education and Hospitals of the American Medical Colleges and the Federation of State Medical Boards of the United States.

The Council on Medical Education and Hospitals of the American Medical Association has accomplished a wonderful work. Over a period of years they have worked for and made possible medical standards that have improved and advanced with the times. In my experience of over twenty years as a member of a state medical examining board, I have observed and come in direct contact with the excellent work of this Council. It has been their persistent and thorough inspections and gradings of medical colleges that have, to a large degree, separated the good from the bad until, at this time, most of the medical schools are on the good side.

To the state medical boards the Council on Medical Education and Hospitals has given the utmost cooperation. In the instance of the Louisiana board, we have benefited on numerous occasions not only by the Council's ratings and standings of the various medical colleges and institutions, but also by its aid on questions of policy. The secretary of the organization, Dr. William D. Cutter, is always so willing to aid in any way possible that I sometimes feel that I call on him more than I should. He has helped us many times with advice that is always sound and cheerfully given, and we do want Dr. Cutter to know that the Louisiana board appreciates his efforts in our behalf.

In regard to the relationship of medical education to universal reciprocity, it is to be appreciated that with very few exceptions the medical colleges of this country have high standards of medical education which assure the profession and the public of graduates who are competent and adequately educated to practice medicine. The graduates of the few medical colleges in

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this country which fail to meet the standard of requirements of the American Medical Association are not allowed the privilege of applying for examination in most states. With the present trend toward stricter regulations by these accrediting associations, it is certain that these few colleges will either have to meet present requirements or go out of existence, so that their graduates cannot be considered an obstacle to universal reciprocity.

The final disposition of universal reciprocity will naturally have to be decided on by members of the Federation of State Medical Boards. When this question is analyzed, one reaches the conclusion that it is entirely feasible and its adoption should not work a hardship on any of the state boards; on the contrary, it should be of decided benefit to the boards. Universal reciprocity will have to be worked out on a basis of medical education. Each board should always have the privilege of investigating the individual applicant and determining whether he or she is a proper person, with reference to character, ethics and the like, to practice medicine. Several questions must be ironed out and we should be willing to give and take. A number of factors present themselves for consideration in this regard. Some states have mixed boards because of cults, legislative acts, and so on. In others basic science examinations are required. The internship problem is another that differs among the states. Some boards have much higher educational and examination requirements than others. All of these differences, in my opinion, can be arranged so as to reach a happy medium. Two or three states provide no reciprocal relations. It is my reaction that these states, if they so desire, should not be disturbed in this self-satisfied feeling. However, it is most pleasing to note that there remains a very small number of these; in fact, the state of New York has, or is planning to adopt, or has recently adopted, rules and regulations for reciprocity with additional states.

One of the predominating obstacles to universal reciprocity is the basic science law. Even though the basic science law is a good one and is very necessary in the states which require it, I cannot see any fairness in injecting it in the question of reciprocity. Louisiana has a board composed entirely of doctors of medicine. The state examination covers twelve subjects, including the basic science subjects. Graduates of recognized American medical colleges, with their premedical education and medical training, have covered this field thoroughly. If any individual meets all the requirements of a state examining board and passes a written examination which covers these subjects, why should he, when asking for reciprocity with a state that has a basic science law, be subjected to the embarrassment of taking an examination with men who are not graduates of recognized medical colleges? There is not the slightest objection to the basic science law, for states endeavoring to obtain the best possible solution to the question of medical licensure. On the other hand, if another state is so fortunate as not to be infested with reasons that require a basic science law, why should that state's licentiates be subjected to an examination in the basic sciences? I believe that the states that require the basic science law will realize the position of the other states and, I am sure, this question can be solved.

The question of internship or length of practice subsequent to licensure also differs in many of the states. I feel that this matter can be adjusted satisfactorily.

The Louisiana board has the following requirements for reciprocity:

1. Applicant must be 21 years of age, of good moral character, and, if not a citizen of the United States, must present first naturalization papers. Citizenship as a requirement for licensure was written into the Louisiana law in 1918.

2. He must appear in person before a member of the board and present completed application.

3. Satisfactory evidence of acceptable premedical education and an M. D. degree from a recognized medical college in the United States rated as class A—standard

American Medical Association—is required. The requirement of a class A diploma was also written into the Louisiana law in 1918.

4. Permanent certificate issued on examination by and from a state board of medical examiners with which Louisiana reciprocates must be presented.

5. Reciprocity fee is $50.

6. Applicant must show evidence of having served one or more years of practice in the state from which he seeks reciprocity endorsement, or one year of accepted internship in an approved hospital in the United States. Effective with graduates of 1939, the one year of internship is obligatory.

We also check the individual's credentials through the office of the American Medical Association.

Louisiana has certain rules for the endorsement of a reciprocity applicant from Louisiana to another state board. The most important of those, in my opinion, is the requirement that *an application must be complete in every detail* before it will be endorsed by the Louisiana board. There are no exceptions to this rule, and the information on each application is compared with our records. In addition, we require for our files two letters of recommendation from reputable, practicing physicians, who personally know the applicant and live in his vicinity, and the fee of $5. The applicant must, of course, be qualified to practice medicine in Louisiana for the current year.

The above requirements, to a very marked degree, are comparable with those of most of the other state boards. The Louisiana State Board of Medical Examiners is most willing to cooperate in every way to adopt any resolution which will make universal reciprocity a reality.

I have purposely refrained from going into detail in regard to several of the moot questions or the differences in certain requirements of the various boards. The question of bringing about a happy medium, of course, will be the function of the Committee on Interstate Endorsement of the Advisory Council on Medical Education and Licensure. My purpose in presenting this subject is that I know it is of vital interest to us all. Reciprocity among the different medical boards has always been a bone of contention. If all the boards had the same requirements, the medical colleges, the graduates and the boards would have a much easier task. When all is said and done, the solution is one that will help promote further progress in medical education; it will assist very materially in weeding out physicians who have a tendency to hitch hike from one state to another. The boards with lower requirements would be benefited by having to raise their standards in conformity with other boards. The graduate physician would know he had to meet these requirements regardless of where he was to practice medicine.

When the question of universal reciprocity is discussed, the National Board of Medical Examiners naturally is to be considered. This body, composed of outstanding medical talent selected from the different national medical organizations, is recognized by the majority of the states. It has accomplished much good and its requirements are of the very highest. An individual with a certificate obtained after examination by the National Board of Medical Examiners should certainly be eligible for reciprocity with another state, provided there is no legal hindrance. Louisiana is one of the few states, at the present time, that does not accept certificates from this board for reciprocity. However, the board has had under consideration and discussion the possibility of endorsing certificates of the National Board of Medical Examiners, and hopes soon to reach a favorable solution.

It is realized that certain states will have to make changes in their Medical Practice Acts so as to conform with some of the recommendations for uniform endorsement. If universal reciprocity be accomplished, it is of sufficient importance that any state would be willing to alter its Medical Practice Act in order to conform with the requirements. Of course, a board would never

be asked to amend its medical law except to add a desirable feature.

This year marks the twenty-eighth birthday of the Federation of State Medical Boards. The accomplishments of this organization have been numerous and as members we have all received its benefits, assistance and encouragement in solving our most intricate problems. This organization has indeed been fortunate in having one who guided it from infancy to maturity —Dr. Walter L. Bierring. His leadership, his tireless efforts and his good judgment are in my opinion the predominating factors in its success.

A SYMPOSIUM ON LOBAR PNEUMONIA*

THE PATHOLOGY

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The topic of the pathology of lobar pneumonia has been assigned to me, as one interested in this field. It is fully realized that in this particular disease the pathology is probably more familiar to the general man than perhaps any other disease of the human body. The time-old stages of congestion, red hepatization, grey hepatization and resolution, are familiar subjects to all who have passed through a medical course and have had any experience in practice. Naturally, I feel, therefore, that my remarks from this standpoint alone will be redundant and represent, if anything, only a refreshment of memory. There are, however, the phases of pathogenesis and pathologic physiology, integral units of pathology, which represent more interesting and important considerations in such a symposium.

All inflammations of the lungs, or pneumonitis, with consolidation due to outpouring of exudate into the alveoli, are called pneumonia. As we know, when the consolidation is diffuse and fairly uniform throughout one or more lobes and proceeds synchronously in its phases, it is called lobar pneumonia, and when it is patchy and uneven, it is spoken of as lobular or bronchopneumonia. As a rule, only one such involvement exists at a time; however, there are instances wherein one may find a lobar pneumonia in one lung, and a lobular type in another. Usually lobar pneumonia is limited to one lobe, but may involve more than one lobe, and both lungs may also be affected.

It is impossible to discuss the pathology of lobar pneumonia without some allusion to the causal micro-organism. The effect must be linked with its provocative factor.

Lobar pneumonia is caused almost exclusively (over 90 per cent) by the pneumococcus. Other causative factors, such as the Friedländer bacillus, streptococcus, and other micro-organisms, may occasionally cause this particular type of lesion. It is well recognized, however, that the pneumococcus in early childhood may give rise to the lobular form of the disease.

Naturally, the discussion of the pneumococcal group, reaching, as it has, 32 different types and very recently probably 33, constitutes a very interesting, important and significant field. The investigation of the biochemistry of this micro-organism, in its various component parts, including both capsule and coccal body, such as the specific and non-specific polysaccharides or carbohydrates, the Fossman antigen and the nucleoprotein, has a more distinctive bearing on this infection than might at first be realized. While it is not within the scope of this presentation to delve into the bacteriologic considerations, it is in order to state that such biochemical studies have a definite purpose, other than that of mental and scientific calisthenics. Numerous efforts are being made to produce specific sera for the purpose of lysing or destroying the capsule of the pneumococcus, which constitutes a protective coat, and appears particularly during its invasion of the human body. To dissolve such capsules would permit of greater efficiency of action by the bodily defensive mechanisms, as well as by

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biologic immune and, perhaps, chemotherapeutic factors.

VIRULENCE

The virulence of this micro-organism, independent of the accepted type variations, is a topic that merits some discussion. Gain of virulence is best regarded as a phenomena of biologic adaptation on the part of the micro-organism to the conditions prevailing in its environment. Analysis of the various factors which determine virulence in the pneumococcus leaves us with some definitely established facts. It appears that the power to multiply in the tissues of the host is, in some way, related to the vegetative power of the bacterial cell, as manifested by the rate of its proliferation *in vitro*.

Fulton and Dougherty devised a specially constructed mechanical device which permitted regular transfers of cultures at very short intervals, say of two, four, or eight hours. Under such conditions, the virulence of single cell strains of a virulent pneumococcus was raised; in some cases, ten million-fold or to such a point that a single diplococcus would kill the usual testing animals, namely white mice. Apart from such *in vitro* observations, virulent pneumococci, when freshly isolated from foci of disease, are usually found encapsulated; with the impairment of virulence on artificial media, there is a tendency for the capsule to disappear or to become less markedly developed. The inference, therefore, seems justified that the presence of capsular material stands in direct relation to virulence and pathogenicity. It has been shown that pneumococci present in the early stages of the disease are highly virulent for mice, whereas those in the resolution stage will fail to infect. It has long been suggested that the pneumococcus secretes a toxic principle which diffuses into the circulation. Aside from the consideration of the virulence, the host susceptibility is of importance. This constitutes those factors listed as predisposing causes, such as: (1) Age: The disease is most commonly found at the two extremes of life. (2) Sex: In adult life, it occurs two or three times as frequent in males as in females, probably because of the greater exposure of males to inclement weather. (3) Exposure to cold is an undoubted inciting factor in many cases. The disease often begins suddenly a few hours after exposure. (4) Debilitating disease, such as cancer, decompensated heart disease, nephritis, or cerebral hemorrhage, very often terminate in pneumonia. (5) Severe trauma to any part of the body, particularly the brain and chest. (6) Alcoholism: Many chronic alcoholics develop pneumonia, because of their lowered resistance. (7) Exposure to patients with pneumonia; in the crowding of the individuals, such as in barracks, outbreaks often occur, and in these instances there is no doubt that the disease is spread by contact.

PATHOGENESIS

There are many divergent interpretations of the route by which the infection of the lung occurs after the pneumococcus has entered a susceptible subject. Many believe that there is an infection of the blood before the pulmonary lodgment takes place. Others believe that there is, primarily, an injury to the mucos and through this injury, the bacteria enter the lymphatics surrounding the trachea. During the course of pneumonia, pneumococcic septicemia is common. In the Rockefeller Hospital, where systematic blood cultures were made, 30.3 per cent were found positive; in those instances where repeated cultures were made 50 per cent were found positive.

The factor of greatest discussion and interest is the uniformity of pathologic change in a massive but restricted area, such as, for example, a whole lobe of a lung. It is in this connection that the lymphatic distribution has been more seriously considered than that of the bronchogenous or hematogenous route. McCallun, however, points out that such invasion of lymphatics represents a spread against the current flow, and states that an ebb and flow current would be necessary for dissemination. It is at this point that a more novel suggestion of primary sensitization by the pneumococcus, either because of its presence in the upper respiratory flora, or some earlier infection producing an allergic diffuse sensitivity, which, upon re-infection, produces

the massive reaction. This is, of course, in accord with the lobular type produced by the pneumococcus in early childhood as contrasted with the lobular form occurring in the adult.

Irrelevant of these various scientific efforts as to the manner of formation and unlike the value of the detailed bacterial investigations, the exact manner of massive uniform change is a physical fact. Herein, we arrive at the well-known stereotyped pathology of lobar pneumonia in its rhythmic sequence of stages.

PATHOLOGY

In lobular pneumonia, one or more lobes or one or both lungs may be affected. The lower lobes are involved much oftener than the upper. Very frequently the lower lobe shows complete consolidation with a strip of the upper lobe adjacent to the interlobar fissure also affected. This is explained by the fact that the lower border of the upper lobe is frequently supplied by a branch of the bronchus to the lower lobe.

There are four definite stages of lobar pneumonia which can be distinguished: the stage of engorgement, red hepatization, grey hepatization and resolution. The first of these anatomic changes, the stage of engorgement, is rarely ever seen at autopsy, except perhaps at the edges of an advancing consolidation. The character of the changes in the lung at this time is more or less constructed along the known course of inflammation elsewhere. The characteristic change found at this stage is a dilatation of the alveolar wall capillaries with blood and there is an exuding of fluid and a few leukocytes and red blood cells into the air cells.

In the second stage, that of red hepatization, so-called because the lung is red and solid like the liver, there is an abundant inflammatory exudate which fills the air cells and is clotted and these clots are firm and dry. This clotted exudate is made up of a coarse-meshed network of fibrin, studded with pneumococci, red blood cells, polymorphonuclear leukocytes, some desquamated endothelial cells and many mononuclear wandering cells. These latter cells are rarely found in the later stages. From a microscopic point of view, the most impressive thing at this stage is the freshness and good state of preservation of the cellular elements. The red cells are intact, they show no sign of laking or hemolysis. The leukocytes are clearly outlined and many show active phagocytosis.

The gross appearance of the lung at this stage is very characteristic. The pleural surface over the involved area loses its normal gloss and is covered with a delicate, scarcely perceptible, layer of yellowish fibrin. Upon sectioning the lung, one finds the cut surface to be dry, rough and of a deep red color. The roughness is due to the slight projection of the plug of coagulated exudate from each alveolus. The involved lobe is firm and airless, while the remaining unaffected lobes crackle and crepitate under the finger and, upon pressure, a frothy material exudes from the alveoli and and bronchi.

In the stage of grey hepatization, the third definite change occurring in this disease process, the involved lobe or lobes are of a reddish-grey to a homogeneous grey color. The microscopic findings are entirely different. Here, the alveoli are densely packed with a cellular exudate. The graceful network of fibrin is gone. It is packed together, often in compact masses. There is a great increase in the number of bacteria and also a marked increase in the number of polymorphonuclear leukocytes. Only the shadowy outlines of a few of the red blood cells may be made out here and there between the closely crowded leukocytes. The alveolar wall capillaries are no longer distended with blood, but are compressed by the mass of exudate. Many of the leukocytes have become granular, ragged and partly disintegrated. Many contain fine droplets of fat and some yellowish pigment. Many of the desquamated endothelial cells contain fat-droplets and pigment granules. At this stage, the pneumococci show degeneration and disintegration and lose their power to stain clearly. An interesting experiment carried out with the rabbit shows that these organisms have lost their power to infect. Animals inoculated with a mass of exudate from an area of

grey hepatization survived, while those inoculated with the same dose from an area of red hepatization succumbed.

Grossly, at this stage, the lung is enlarged, dense and heavy. The outer surface is covered with a much thicker and butter-like layer of fibrin, which can readily be peeled away. There may be an accumulation of turbid fluid in the pleural cavity. Upon sectioning, the cut surface is of a grey or yellowish-gray color, which is due to the laking of the red blood cells, the hemosiderin which is produced from their hemoglobin, and by the fat content of the leukocytes. The surface is not so dry or rough as in the previous stage. The moisture is believed to be due to the retraction of the fibrin setting free some serum in each alveolus.

The last stage, that of resolution, is very seldom seen at the autopsy table, except in those instances wherein the patient dies of some other cause. Those cases that have been studied showed a very remarkable change. The lung was very soft and friable. There was a certain translucence. The alveolar contents had lost their appearance of being in the form of plugs and the lung, as a whole, appeared grey and jelly-like.

At this time, however, the microscopic picture is not quite so pronounced. There only appears a more advanced disintegration of the leukocytes and fibrin. There is a liquefaction of the whole mass of exudate, by the action of the proteolytic ferments of the leukocytes. A very slight amount of it is expectorated. Most of the material is absorbed by the lymphatics and carried away.

The stage of healing, which is an aftermath of the stage of resolution, is practically never seen at the autopsy table. Really the only thing necessary is the replacement of the alveolar endothelium after the exudate is completely removed. At this point, it must be remembered that during this severe inflammatory affection, there is practically no infiltration of the lung tissue itself. The alveolar walls, the bronchial walls and perivascular tissues are not invaded by the bacteria and exudate. After all, this infection resembles one wherein only the mucous membrane is involved and there is no invasion of the deeper structures.

Once the repair or replacement of the endothelial cells takes place, there is no remaining evidence of damage and after two weeks it is impossible to say that that lung had been the seat of a pneumonia.

It is to be noted that the term endothelium has been used rather than epithelium. The reason for this is that recent advances in histologic study have shown that the epithelium of the terminal bronchi of the embryo is dissipated at the time of alveolar dilatation and that only the endothelium of the capillaries remains as a lining.

COMPLICATIONS

My previous description of the pathology represents, of course, the ordinary sequence or pathogenesis of the pathology of pneumonia in the instance of uneventful recovery with the usual clinical crisis. It must be appreciated that wherein the battle, which is waged immunologically or constitutionally, rather than solely in the pulmonic structure, has been lost, death may ensue either at the transitional red-grey stage or in the stage of grey hepatization. Aside from death, wherein the invading enemy is the pneumococcus, through its virulence or, on the other hand, through the lack of proper body defense or both, produces a continued battle, the pathogenesis of complications is set in motion. Evidences of this loss of victory by the invaded subject may be manifested in the various complications so well known.

First: A failure of proper resolution or absorption of exudate may lead to secondary healing or organization of the exudate may lead to secondary healing or organization of the exudative material. Often while this is prevailing, the enemy is carrying on a more extensive injury in other areas, breaking down alveolar septa, and creating a massive softened exudate conforming in aspect to abscess formation.

Second: The pleural involvement may likewise be progressive and as a consequence, the pneumococcus, which is a pyogenic organism, may produce a suppurative exudate, either in the pleural space proper

or in the intralobar fissure areas, resulting thereby in empyema of either type. The primary or pleural cavity form is by far the most frequent.

Extrapulmonary lesions, either early or late in the disease, may also occur, such as meningitis, arthritis, pericarditis, ulcerative endocarditis, and various other such lesions occasioned by either excursions in the devitalized subject, or by an established septicemia in the overwhelmed host or by local extension.

PATHOLOGIC PHYSIOLOGY

Naturally, the physical findings and practically all clinical phenomena present in lobar pneumonia are dependent upon the abnormal functioning of various organic structures or, in other words, the pathologic physiology, which may ensue from various biochemical or actual tissue or cellular changes, together with the exudative processes present in this disease.

Primarily, the pneumococcus, through its factors of pathogenicity, brings about the pulmonary tissue changes already described. But this, of course, is only a part of the abnormalities which are produced in many structures of the body by this organism through its poisonous or toxic moieties. The physical signs discernible through the eye, fingers or stethoscope have their basis in the pathologic changes present. In other words, lying on the affected side, increased breathing of the normal lung, the fremitus changes, the bronchial breathing, the flat note, the friction rub and the like, are directly traceable to the actual pathologic processes. The increased rapidity of breathing, the cyanosis, the anoxemia may be of combined origin, including respiratory center disturbance.

Without detailed enumeration, it can be appreciated that the pathogenesis of cause and effect are directly responsible for the complete clinical syndrome, as well as the various types of complications that may occur. It should be realized therefore, that while the main conflagration or inflammatory changes are focused upon the pneumonitis or lung area involved, at the same time the smoke and destructive fumes are permeating the human edifice and wreaking damage or altered function of various vital organic structures. It can readily be understood, that while attention may be centered upon the primary focus or lung lesions, in the interim the kidney damage, heart changes, neurologic system involvement, or other serious injury, may be the salient factors in the production of death.

In gist therefore, it is manifest that aside from the area of lesion, the disease has its important constitutional factors through which the pathologic physiology produced forms essential and vital considerations in the handling of such cases.

SUMMARY

It is to be appreciated that from the pathologic side, which would include cause and effect, of this interesting and important disease, is found the basis of the underlying principles involved.

The mere narration of the detailed changes concerned in the gross and microscopic pathology are only a component of the broad scope that should be encompassed through such a study.

It is of great importance that such a consideration must, of necessity, involve to a great extent the general study of all factors that are involved in such a case, including, of course, the complications.

From the etiologic standpoint, the immunologic study, especially from the therapeutic aspect, is of the greatest importance. Naturally, biologic or chemotherapeutic measures which would bring about the curtailment of the pathogenesis provoked by the offending micro-organisms must lead to recovery of the patient and the prevention of the very serious complications, both within the thoracic cage or elsewhere in the human host.

X-RAY DIAGNOSIS

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NEW ORLEANS

Lobar pneumonia as defined by Reimann embraces a group of acute pulmonary infections caused by the pneumococcus and characterized by typical, striking and uniform clinical signs and symptoms. Pathologically, there is exudative inflammation

involving one or more lobes of the lung. This statement implies that no momentary translation of the pulmonary lesion to an x-ray film can warrant an unqualified diagnosis. It might be possible to diagnose the disease by this method alone were a series of films to be made at short intervals throughout the course of the illness, from the onset of symptoms to complete resolution, but nothing short of this would do. In actual practice correlation with physical examination and other laboratory procedures affords an approach which leads to correct conclusions in a very large percentage of the cases observed.

Rarely does a patient with lobar pneumonia reach the hospital before there is sufficient alveolar exudate to cast a shadow on the roentgenogram. Patients seen within 12 to 18 hours after the clinical onset may show massive dense consolidation, veil-like haziness, or small areas of clouding near the hilus or at the periphery. It has been estimated that the changes in any one lobe reach their maximum extent and density in about three days after the initial symptoms, but that considerable variation is present. However, it may safely be stated that if no x-ray findings are present in 48 hours, the clinical diagnosis is probably incorrect. The appearance of the lesion on the film coresponds to the actual status of the affected lobe more nearly than does the impression obtained from physical findings which tend to minimize its extent until full consolidation has been attained and which may, in some instances, be absent or minimal throughout.

There has always been some controversy as to the site of origin of the consolidation and the existence and frequency of hilus or central pneumonias. While they probably do occur, many which offer this appearance actually reach the periphery either anteriorly or posteriorly. Their lobar conformation can only be demonstrated by lateral projections. Others which lie in the paravertebral portion of the lung behind the heart may be completely overlooked unless further studies are made.

A lobe may be involved in part or as a whole. Frequently lower lobe pneumonias do not involve the prolongation of the lung into the costophrenic sulcus so that clouding in this area may be assumed to indicate extension to the pleura and the formation of an effusion. This belief, while in the main true, has the weakness of all similar rules of thumb when applied to any individual case. Regardless of the density of the clouding and its extension from base to very apex, the diagnosis of pleural effusion is justified only when there is a shift of the mediastinal structures or when the visceral and parietal pleura can be seen to be separated.

The presence of pneumonic consolidation affecting a lobe or a considerable part of one does not, as suggested above, necessarily connote a pneumococcal infection. Identical appearances may obtain in tuberculosis, confluent bronchopneumonias, particularly those produced by staphylococci and Friedländer's bacillus and bronchiogenic carcinoma. Usually an evaluation of the roentgen findings in terms of the data obtained by other means will lead to proper differentiation, but if this fails there is no recourse but to withhold the diagnosis and continue observation of the patient until a reasonable conclusion can be reached. Certainly it does no harm to treat the patient on the basis of the most probable diagnosis, if therapy be urgent, without accepting that diagnosis until proof is at hand.

There is very little evidence in those cases seen at the Touro Infirmary to support the hypothesis that bronchial occlusion and the resultant atelectasis play a large part in the pathogenesis of lobar pneumonia. The displacement phenomena observed in the usual type of atelectasis are not seen. Rarely, however, a patient whose history suggests pneumonia will prove to have a spontaneous massive atelectasis, otherwise typical in every respect and clearing rapidly after bronchoscopic aspiration of secretions.

While some regularity is present in the roentgen findings in lobar pneumonia before resolution begins, none can be observed thereafter. Resolution may precede, coincide with or follow the crisis, no intimate relationship being demonstrable. It may

originate in the periphery or in the hilus, although usually tardy in the latter region. It is frequently earlier in the older lesions, but this is not invariable and resolution may go hand in hand with advancing disease elsewhere in the lung. The process may be rapid or so leisurely that, particularly if all the antecedent facts are not available, it may simulate tuberculosis, bronchopneumonia or suppurative pneumonitis. Here again continued observation may offer the only clue. In one series, several patients were checked from 30 to 77 days after the onset of resolution, before a normal appearance on the roentgenogram could be noted. The patient with lobar pneumonia should not finally be discharged until his lungs are clear or until it is evident that the residual fibrosis has reached an irreducible minimum.

THE SPECIFIC TREATMENT OF PNEUMOCOCCIC PNEUMONIA

A REVIEW OF RECENT LITERATURE AND AN ANALYSIS OF 100 CASES

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NEW ORLEANS

The treatment of pneumococcic pneumonia has undergone marked changes during the last few years, and the mortality of the disease, as the result of these changes, has undergone a very considerable reduction. The chief of these changes are the use of concentrated and refined rabbit antiserum, which is now available for each known type of pneumococcus, and, more recently, the use of chemotherapy in the form of sulfapyridine. Before these methods were introduced the mortality of pneumococcic pneumonia averaged 30 to 35 per cent. It has been reduced to an average of 10 per cent with the use of antiserum therapy and to an average of 7 per cent or less with sulfapyridine therapy, which is still too new, however, to permit generalizations. The introduction of these methods has naturally, in spite of the efficacy, increased the problem of the physician. He must make the diagnosis of pneumonia promptly, he must identify accurately the etiologic agent in each case, and he must fully understand the indications, mode of action, and risk attached to each type of therapy.

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ANTISERUM THERAPY

Action and Dosage: The value of type specific antipneumococcic rabbit serum has been repeatedly shown[1,2]. It achieves its effect, according to Bullowa[3], by neutralization of the pneumococcic antigen or capsular carbohydrate, thus sensitizing the bacteria and allowing their lysis or phagocytosis and destruction. For recovery to occur, all of the circulating antigen must be neutralized by antibody which is either formed actively in the body cells or is artificially introduced.

Bullowa calculated the amount of antiserum necessary to accomplish this purpose on the basis of observations that the blood of many patients who recover spontaneously from pneumococcic pneumonia contains from 10 to 20 units of antibody per cubic centimeter. The average adult, who has approximately 10 liters of circulating blood in his body, would therefore need from 100,000 to 200,000 units of antibody in his blood stream at any given time. Since the amount of actively formed antibody is unknown in a given case of pneumococcic pneumonia, it is important that a large amount of antiserum be injected within a short period of time.

Volini and Levitt[4] recommended that this be accomplished by the intravenous administration of the entire calculated amount of antiserum in a single dose by the following routine, which resulted in a thermic reaction in only 8 per cent of 69 cases so treated:

1. After a careful history and eye and skin tests have revealed that the patient is not hypersensitive, a test dose of 1 c. c. of undiluted antiserum is injected into the vein, very slowly, over a period of two minutes.

2. If there is no reaction from the initial dose, the balance of the basic dose of 100,-

000 units is given by the same route at the rate of 1 c. c. per minute.

3. Even larger doses may be given as a single injection if the total amount administered does not exceed 35 c. c.

4. If an infusion of normal saline solution is to be given at the same time as the antiserum, the entire dose of the latter may be injected through the rubber tubing near the needle and be permitted to enter the vein at the rate of 1 c. c. per minute.

Bullowa[5] also recommended the intracutaneous injection of type specific polysaccharide as a further guide to adequate serum therapy and prognosis in infections of types I-VIII and type XIV.

Effects: In patients in whom the antiserum is effective, the temperature, pulse and respiratory rate return to normal within six to 24 hours. If bacteriemia is a complication, the return to normal may be delayed for 48 hours. The lesion in the lung clears up rapidly because the disease actually has been arrested and an artificial crisis has been induced.

Unsuccessful results, according to Bullowa[3], may be due to several causes. The pneumococci may have been improperly typed, or may have been obtained from some part of the respiratory tract other than the diseased lung. More than one type of pneumococcus may have been identified and the one not responsible may have been selected for antiserum therapy. Some strains of pneumococci (type III, for instance) are apparently somewhat resistant to antiserum. Finally, the serum may have been given too late or in too leisurely a manner, or the dosage may have been inadequate.

Reactions: Reactions are infrequent after the use of the newer refined and concentrated sera, and serum sickness is unusual. Immediate anaphylactic shock can be prevented by a careful history and properly interpreted eye and intravenous tests. Thermic reactions are apparently less frequent when undiluted antiserum is injected in a single dose[4].

CHEMOTHERAPY

Two months after Whitby[6], in May, 1938, had reported that sulfapyridine was chemotherapeutically active in experimental pneumococcic infection in mice, Evans and Gaisford[7] were able to report a mortality of 8 per cent in 100 cases of pneumonia so treated, against a mortality of 27 per cent in 100 control cases, in which the drug was not used. Since that time many other published reports have made clear the value of sulfapyridine in pneumococcic pneumonia.[8-12]

Action: The action of sulfapyridine is not clearly understood, but the most widely accepted hypothesis is that its effect on the pneumococcus is bacteriostatic, and perhaps bactericidal as well.[13-15] The action is not immediate, for bacteriostasis does not become definite until approximately 24 hours after the administration of the drug is begun.[41] Sulfapyridine has no stimulating effect on the phagocytic cells or on the specific immune defences of the body,[13-15] though its action in pneumococcic infections is enhanced by the presence of type specific antibodies, and recovered patients have the same immunity as those who do not receive the drug.[13-16] Protective antibodies rarely develop before the sixth day and agglutinins rarely appear before the seventh day of the disease.[15]

Sulfapyridine does not alter the type specificity of the pneumococcus capsule.[10,13,14] Although all types of pneumococci are susceptible to its action, Maclean, Rogers and Fleming[17] found that the various strains differed in their sensitivity to it. They therefore suggested that tests to determine the resistance of each strain may have a clinical application in the selection of cases suitable for chemotherapy.

Dosage: Whitby[14] recommended a high initial dose of sulfapyridine, amounting to 5 grams within the first 12 hours. Two 2 gram doses are given at four hour intervals, followed by 1 gram at the end of the next four hours. A maintenance dose of 1 gram is given every four hours thereafter. Whitby believed that with this dosage it was possible to maintain blood levels of 18 mg. of sulfapyridine per 100 c. c. of blood. It was his opinion that pneumococci may become resistant (or fast) to the action of the drug if repeated or prolonged courses of the drug

are given, and for this reason he emphasized the importance of a large initial dosage.

Evans and Gaisford[7] suggested an initial dose of 2 grams to be followed by 1 gram every four hours. They stressed the importance of continuing the therapy for a sufficient period of time, and cited two of their cases in which the pneumonic process had recurred because this precaution had not been observed. Long and Wood[10] emphasized the same possibility and suggested the following routine for adult patients moderately ill with pneumococcic pneumonia:

1. As soon as the clinical diagnosis of pneumonia is established 4 grams of sulfapyridine are administered.

2. A dosage of 1 gram is then administered every four hours (day and night) until the temperature has been normal for 48 hours.

3. A dosage of 1 gram is administered every six hours until resolution is well under way.

4. A dosage of 0.5 gram is administered four times a day until the patient is ready to leave his bed.

5. If, the day after treatment with sulfapyridine is begun, the concentration of "free" sulfapyridine in the blood is under 4 mg. per cent and the rectal temperature is not below 101° F., monohydrate sodium sulfapyridine is administered intravenously in doses of 0.06 gram per kilo of body weight. The peroral administration of the drug is continued by the usual routine.

Long and Wood[10] listed, as further indications for intravenous sulfapyridine, massive infections, severe nausea and vomiting, and recent surgical procedures in which the peroral use of the drug would be undesirable. Flippin[18] used the drug both intravenously and intramuscularly, but Gaisford recommended the intramuscular route for parenteral therapy and advocated injections at four hour intervals. He considered that it can be safely given to children and infants in appropriate doses by the intramuscular route.

Long[10] recommended that in preparing sodium sulfapyridine for intravenous use, the required amount of the drug be dissolved in enough sterile distilled water to make a 5 per cent solution. In children and infants the dosage of the drug, whether it is to be used orally or intravenously, should be calculated on the basis of body weight in proportion to the dose used for the average adult. Bullowa used the sodium salt in tablet form orally because it is absorbed more quickly in this form and acetylation appears later.[5]

Effects: In most patients there is a prompt fall in temperature to 99°F. or even lower within 36 to 48 hours after the drug is administered. The respiratory rate is slowed, as is the pulse rate, though to a lesser degree, and the patient feels much improved except for mental depression or other toxic effects to be attributed to the drug itself. The physical findings in the lungs clear up more slowly and may persist for as long as a week.

If such a response does not occur promptly, several possible explanations suggest themselves. The dose may have been inadequate, or absorption may have been insufficient because of vomiting or because of the development of a paralytic ileus. In such cases, the blood levels of free sulfapyridine should be determined, even though no direct connection has ever been shown between them and clinical improvement. The explanation may be individual variations in the ability to absorb and conjugate sulfapyridine to the acetyl form, as has been pointed out by Long and Wood.[10] Whatever the reason, patients who show no response to oral sulfapyridine therapy within 24 to 36 hours present indications for the parenteral use of the drug or of type specific serum.

Toxic Reactions: The most common toxic reactions to sulfapyridine are nausea and vomiting,[8, 10, 14] which may become severe enough to prevent oral medication. The disturbance is not due to gastric irritation but to the action of the drug on the central nervous system.[19] Cyanosis[8, 10, 14] is also common, but is not of itself a sufficient indication to discontinue the therapy.

The incidence of the more serious toxic effects of sulfapyridine is difficult to deter-

mine because clinical reports vary widely and because sufficient time has not yet elapsed to permit a proper evaluation of the drug. Granulopenia[7, 10, 20-24] has been frequently observed in minor degrees but has been severe in only a few patients. Three fatalities from agranulocytosis are on record: two were in children and one occurred six days after the drug had been discontinued.[24] This manifestation seems more likely to occur in children. Acute hemolytic anemia has been occasionally reported, and lesser grades are rather frequent when prolonged treatment is necessary.

Patients who receive sulfapyridine excrete in their urine free sulfapyridine as well as crystals of acetyl sulfapyridine. Uroliths of such crystals have been demonstrated in animals by Antopol and Robinson[25] following the administration of repeated doses of the drug, but they also showed that such concretions are unlikely to form after single large doses. It would not be possible to visualize them by x-ray unless calcium were subsequently deposited around them.

Hematuria occurs in approximately 5 to 7 per cent of patients who receive sulfapyridine[8] and is believed to result from mechanical damage by the crystals. It may be associated with abdominal pain and nitrogen retention, due to ureteral obstruction.[26] Two fatal cases have been reported, one in a young adult[9] and one in a child who developed abdominal pain and nitrogen retention during treatment.[27] Necropsy on the child revealed bilateral ureteral obstruction caused by clumps of the crystals, and it was then suggested that cystoscopy to dislodge the stones might have been of benefit.[27] Long and Wood are as yet uncertain as to whether the use of sodium bicarbonate will influence the formation of these uroliths. In their opinion the appearance of only 10-20 red blood cells per high power field does not indicate discontinuation of the drug, but their presence in larger numbers does. There is no known method of predicting renal damage in sulfapyridine therapy, but it would seem of advantage to know the level of acetyl sulfapyridine in patients who are given large doses of the drug or in whom blood levels of "free" sulfapyridine are maintained above 4 mg. per cent.[28]

Whether the drug produces a true nephritis or hepatitis is not yet known, but the appearance of jaundice in a case observed by Long and Wood suggested the possibility of liver damage.[10] Morbilliform rashes[8, 10] are of frequent occurrence, and, although they are not usually serious, they present an indication for discontinuance of the drug. Mental depression occurs in many cases, and true psychoses have been observed in approximately 1 per cent[8]. Drug fever has been observed in a few instances,[8, 10] but is difficult to evaluate. In spite of these and other possible complications, the only established contraindication to the institution of sulfapyridine therapy is a history of a previous toxic reaction to sulfapyridine or one of its related compounds.

REPORT OF CASES

The 100 cases of primary pneumococcic pneumonia analyzed (table I) were treated at Charity Hospital of Louisiana at New Orleans between July 1, 1939, and January 15, 1940, with a mortality of 3 per cent. Only individuals above five years of age are included in this analysis, and all cases were proved by roentgenologic and bacteriologic studies. These cases were treated, as far as possible in rotation, as follows: 60 cases (with one death) by sulfapyridine; 30 cases (with two deaths) by sulfapyridine and serum; 10 cases (with no deaths) by serum.

The low mortality is to be explained in several ways. The disease was relatively mild, as it usually is in late summer and early winter. Bacteriemia was not present in any instance. In my own opinion, however, the low mortality is largely due to the vigilance of the admitting physicians and the cooperation of the resident and visiting staffs on the Tulane University, Louisiana State University and Independent medical services in Charity Hospital, which insured prompt treatment in all cases. In some instances specific treatment was being ad-

TABLE 1

Type Pneumococcus	Treated With Sulfapyridine			Treated With Sulfapyridine & Serum			Treated With Serum			Total Cases by Types	Total Deaths
	No. Cases	Av. Hrs. Fever Duration	Deaths	No. Cases	Av. Hrs. Fever Duration	Deaths	No. Cases	Av. Hrs. Fever Duration	Deaths		
I	19	30	1	10	37	0	3	20	0	32	1
III	3	32	0	6	30	0	0	0	0	9	0
IV	6	25	0	3	31	0	1	12	0	10	0
V	5	33	0	1	24	0	0	0	0	6	0
VI	0	0	0	0	0	0	2	42	0	2	0
VII	5	29	0	4	24	0	1	36	0	10	0
VIII	8	37	0	1	24	0	2	24	0	11	0
IX	0	0	0	1	18	0	0	0	0	1	0
XI	1	36	0	2	48	1	0	0	0	3	1
XII	2	36	0	0	0	0	0	0	0	2	0
XIV	1	96	0	0	0	0	0	0	0	1	0
XV	1	72	0	0	0	0	0	0	0	1	0
XVII	2	72	0	0	0	0	1	12	0	3	0
XVIII	1	12	0	0	0	0	0	0	0	1	0
XIX	3	24	0	0	0	0	0	0	0	3	0
XXII	1	120	0	0	0	0	0	0	0	1	0
XXIII	1	48	0	0	0	0	0	0	0	1	0
XXIV	0	0	0	1	72	0	0	0	0	1	0
XXIX	0	0	0	1	148	1	0	0	0	1	1
?	1	32	0	0	0	0	0	0	0	1	0
	60	.....	1	30	.....	2	10	.....	0	100	3

ministered as early as 30 minutes after the patients had been admitted.

The single death in the group of sulfapyridine-treated cases occurred in a 65 year old negro male who did not respond to massive oral therapy. Whether he received the full dosage of the drug is highly questionable, since he vomited frequently; sodium sulfapyridine was not then available for intravenous use.

The two deaths in the 30 cases treated by the combined therapy are readily explained: This group is composed of patients whose disease was more severe and who for the most part had not responded to therapy with either sulfapyridine or with serum alone. One of the patients who died was a 65 year old negro male who had uremia and who did not show response to any therapy at any time. The second death in this group occurred in a 37 year old negro male who was given 200,000 units of antiserum, followed by massive oral and intravenous therapy with sulfapyridine, the dosage being sufficient to maintain high blood levels. Necropsy revealed that all five lobes of the lungs were involved, and type XXIX pneumococcus, which had previously been isolated by sputum examination and lung puncture, was also isolated from the lung itself.

There were no complications in the remaining cases, and no serious toxic effects followed treatment. Two patients developed thermic reactions after the administration of serum. In the sulfapyridine group, vomiting and cyanosis were fairly frequent, but neutropenia and acute anemia were not observed in any instance. Seven patients exhibited microscopic hematuria, but no gross hemorrhages occurred.

ROUTINE OF TREATMENT

Two agents are thus available which have been proved to be very effective, as well as reasonably safe, in the treatment of pneumococcic pneumonia. The full value of drug therapy remains to be established, but in the light of present knowledge, we are justified in carrying out such a routine as the following, which is modified from that suggested by Plummer,[29] as soon as the clinical diagnosis of pneumonia is established or seems reasonably certain:

1. In the absence of contraindications, sulfapyridine is administered immediately by the oral route.

2. The sputum is examined and typed for pneumococci.

3. A urinalysis, total red and white blood cell count, hemoglobin determination, and blood culture are made at once.

The urinalysis is repeated daily, and the total red and white blood cell count and hemoglobin determination every 48 hours.

The examinations are made more frequently if any decreases from the normal blood picture are observed, and are continued, though at longer intervals, for 10 days after the sulfapyridine therapy has been discontinued.

4. Antipneumococcic serum (rabbit) should be given, in addition to sulfapyridine, in the following cases, after the specific type of pneumococcus has been determined and precautions have been taken to prevent possible serum reactions:

A. All type III pneumonias.

B. All cases in which more than one lobe of the lung is involved.

C. All cases associated with bacteriemia or with complications.

D. All cases in which the diagnosis is not made until after the third day of illness.

E. All cases in which the patient is 65 years of age or older.

F. All cases in the last weeks of pregnancy or in the puerperium.

G. Certain cases of postoperative pneumonia or pneumonia subsequent to some debilitating illness.

5. The soluble salt of sulfapyridine (sulfapyridine sodium monohydrate) should be given intravenously in the following circumstances:

A. When serum is indicated but cannot be given and it is desirable to maintain high blood levels of sulfapyridine.

B. When the infection is massive or fulminating.

C. When there is excessive vomiting or the absorption of the drug is questionable for other reasons.

6. The blood level of "free" sulfapyridine should be determined to insure adequate results from the drug and to control the dosage when it is administered intravenously. When blood levels of "free" sulfapyridine are maintained above 4 mg. per 100 c.c., it may be advisable to determine the level of the "conjugated" form.

7. Sulfapyridine therapy should be continued in the original dosage for two or three days after the temperature has fallen to 99° F. or lower, and in reduced dosage until resolution is complete.

SUMMARY

Recent literature of serum and sulfapyridine therapy in pneumococcic pneumonia has been reviewed, and the mode of action and relative advantages and disadvantages of each method have been briefly considered. One hundred cases treated by sulfapyridine, serum, or combined therapy have been analyzed, and a routine of treatment has been suggested.

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THE DIAGNOSIS OF GOUT*

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The history of gout can be traced back to the beginning of recorded medicine. Hippocrates described the condition, using a Greek phrase meaning "the unwalkable disease." The writings of Galen, Celsus, and Soranus in the first century A. D. contain references to this condition. Sydenham, in the seventeenth century, wrote a treatise on gout that is one of the best clinical descriptions of the disease on record. Notwithstanding the antiquity of gout and its excellent clinical description by authors too numerous to mention, gout still remains a forgotten disease.

INCIDENCE

Current statistics on the incidence of gout are contradictory. Cohen estimated that there were 414,926 admissions to the Philadelphia General Hospital between the years 1905 and 1929. A diagnosis of gout was made 47 times, an average of two cases a year. From 1929 to 1935 in the same institution, a diagnosis of gout was made 30 times in 146,992 admissions. Monroe found that only 59 cases of gout were admitted to the Peter Bent Brigham Hospital in Boston in a twenty-year period. In 1935 only five cases of gout were seen in the Arthritis Clinic of the Presbyterian Hospital in New York City. Volini wrote that the incidence of gout was two cases per 100,000. These figures would indicate that gout is a rare disease. However, Cohen saw over 40 cases of gout in a five-year period. Herrick and Tyson in private practice reported six cases in a single year. Volini in 1935 reported ten cases, two from private practice and eight at the Cook County Hospital in Chicago. Hench found gout present in 6.5 per cent of 200 consecutive patients admitted to The Mayo Clinic with arthritic complaints. The above statistics do not give an accurate index of the incidence of gout because the requirements of different physicians for a diagnosis of gout differ so. Hench writes, "Only one of four or five cases of gout is correctly diagnosed in its early stages. But in some quarters only one of two or three patients who receive a diagnosis of gout actually has the disease." It it very probable that the frequency with which a diagnosis of gout is made varies directly with the index of suspicion that the disease exists. Hench remarks, "It is the suspicion of gout, unfortunately not the disease that has disappeared. Awareness of gout should again have a place in the thought of American physicians. Suspicions often can be confirmed by the enumerated characteristics of gout. If these criteria are used gout will assume not the incorrect position of false high frequency of a century ago or that of the false rarity of the present, but its rightful incidence, about 5 to 8 per cent of cases in an arthritis clinic." Hench, in a study of 100 cases of gout, noted that an average of 15 years elapsed between the first attack of gout and the first diagnosis of the disease. He attributed this to the fact that physicians never think of gout or dismiss it, because of the belief that the disease is extinct or one that the patient "just couldn't have." Hench wrote, "The necessity of taking 1500 years to diagnose 100 cases of classical gout does not indicate a proper understanding of this disease." The Editorial Committee of the American Rheu-

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matism Association in 1935 wrote, "Gout has by no means disappeared, as the statistics of several critical observers reveal. By them it is seen with increasing frequency; its proportionate incidence has been noted. Nor has present day gout 'gone modern,' or changed its character in any important particular. The gout of today presents the same clinical pattern, the same diagnostic criteria, the same characteristic 'chain of fits' as in Sydenham's day."

It is likely that gout in both the past and present masquerades under such diagnoses as rheumatic fever, infectious arthritis, acute arthritis, bunions, foot strain, fallen arches, sprained ankle and numerous other even less specific terms.

Gout in most instances (98 per cent according to Hench) presents a typical clinical pattern that distinguishes it from the majority of diseases with which it is apt to be confused. Since these symptoms are so characteristic and are so frequently misinterpreted, a review of the classical symptoms should be in order. It is hoped that the frequent plagiarisms on the material of Hench will be forgiven. He has done more than any other one physician in the United States to make the medical profession "gout conscious" and it is natural that the pupil should follow in the footsteps of the master.

GENERAL CONSIDERATIONS

Sex Incidence: About 98 per cent of patients with gout are males. A diagnosis of gout in a female should be made most carefully. Pretophaceous gout is occasionally seen in the female, tophaceous gout rarely. The disease in women follows the same pattern as it does in males. The low incidence of gout in females affords an excellent index of the correctness of the diagnosis by a particular physician. Should the incidence of gout in females exceed 5 per cent, the condition is probably being diagnosed when it is non-existent.

Age Incidence: Gout is essentially a disease of middle life, usually appearing after the age of 40 years. Hench writes, "It (gout) is the most common form of acute arthritis among men more than forty and should be first thought of if gonorrhea and acute trauma are excluded." However, neither extreme youth nor advanced age are exempt from the disease. Twenty-eight per cent of Monroe's 61 patients were under the age of 30 years and two of the patients were 10 and 12 years respectively. Allbutt cites one patient in whom the first attack occurred at the age of 80 years. In the younger age group the inability to handle the unknown factor (uric acid?) that produces gout is so marked that the disease becomes manifest at an early age. In other cases the disease is precipitated by the presence of an associated disease such as polycythemia, leukemia or by treatment of an associated disease, as the ketogenic diet in epilepsy.

The Personality of the Patient with Gout: Almost without exception persons with gout are hale, hearty, dynamic, well met and enjoy social contacts. Generally speaking they are inclined to be overweight and possess an unusual degree of physical and mental energy. Rarely is gout seen in shy, introspective, hypersensitive individuals of an asthenic habitus. The majority of patients with the disease live well and enjoy more of the luxuries of life than is commonplace. Salesmen, ministers, business executives, politicians and district managers are frequently afflicted with gout. The consumption of rich food, high living and alcohol is not necessary for the development of gout, as the disease is found in vegetarians, teetotalers and persons who live simply.

THE CHARACTERISTIC FEATURES OF GOUT

Prodromal Symptoms: An attack of gout may come on with dramatic suddenness but as a rule it is preceded by certain premonitory signs and symptoms. These precede the actual attack by a variable period ranging from one to 36 hours. The patient becomes pettish, snappy, irritable, depressed and sleeps poorly on the night preceding the attack. Often a headache is present on awakening; the abdomen may feel uncomfortable and occasionally a mild diarrhea is present. Generally speaking the affected individual feels out of sorts. Occasionally the attack is preceded by an unusual feeling

of exhilaration and well being. Diuresis is not an uncommon prodromal symptom.

The Attack Itself: The affected joint begins to ache and becomes painful on weight bearing. When the great toe joint is the seat of the attack pressure of the shoe becomes unendurable. Within a period ranging from an hour to two days the pain progresses to a degree that is described as the "worst ever." Individuals who have experienced both renal and biliary colic state the pain in these conditions is mild as compared with the pain in gout. The severity of the pain is such as to make an indelible impression in the memory of the patient. Usually he is able to recall minute incidents preceding, during and after attacks experienced years before. The case of Rutledge and Bedard illustrates this point. This patient remembered that ten years before at 4 p. m., after returning from an automobile trip, that redness, swelling and pain in an ankle began. Pain became progressively worse and at 11 p. m. he had to be carried out of a theater and given morphine for the relief of pain. The rapidity with which pain reaches a maximum degree of intensity is characteristic. An individual may be comfortable before an attack and an hour later require an ambulance to get home and morphine for the relief of pain. The affected joint is held immobilized, the slightest movement causes excruciating pain. Pressure of the bed clothing or jarring of the bed by persons walking across the room produces marked discomfort. The pain has a tendency to undergo nocturnal exacerbations, however amelioration during the day is relatively insignificant. An attack lasts a variable length of time, depending on the period over which recurrent attacks have taken place. Early in the disease the duration of the attack ranges from three to ten days (average five days). The rapidity with which joint symptoms disappear is also characteristic of the disease. Individuals with gout may pass an uncomfortable night under the influence of narcotics and sedatives and awaken the following morning with the pain markedly relieved. In 24 hours they may cautiously bear weight on the affected joint. On the following day they may be able to get around with the aid of a cane. The third day frequently finds them back at work. After an acute attack subsides it is characteristic that function of the affected joint is completely restored, no residuum of the attack remaining.

Description of the Affected Joint: The skin overlying the affected joint becomes bluish-red in color, turgescent, hot, sweaty, throbbing and shining and gives the examiner the impression that the joint is about to rupture. When the great toe is involved the tenderness is maximum on the mesial aspect. Bunion joints have been incised and the great toe has been removed surgically in several persons I have seen. When the attack subsides the joint rapidly is restored to normal. Subsidence of pain is followed by an annoying itch and desquamation of the skin that in itself is suggestive of the disease.

The Duration of the Attack: This depends, as a rule, on the length of time over which the disease has been recurring. In the initial stages an attack lasts from two to ten days (average five days). As the disease continues attacks last from ten to 14 days, later three weeks, and still later a month to six or eight weeks. Finally after ten to 40 years (average 12 years) a chronic gouty arthritis occurs. Until the chronic stage sets in each attack is followed by a complete restitution of joint function. The chronic stage is characterized by a failure of the affected joint to return to a completely normal state (incomplete remission) after an acute attack subsides.

The Frequency of Attacks: This is exceedingly variable. Allbutt refers to one patient who had only two attacks in a life time, at the ages of 27 and 88 years respectively. Rutledge and Bedard describe a patient who had 13 typical attacks in a period of about 10 years. As a general rule as the length of time that the disease has been present increases, the attacks increase both in frequency and duration. The case of Rutledge and Bedard illustrates this point. At first the attacks recurred once or twice a year. After a period of nine

years, four attacks occurred in a single year. The first attack lasted ten days; the tenth, 60 days.

The Time at Which Attacks Begin: An acute attack of gout may occur at any hour but characteristically begins in the late afternoon or early morning. The majority of attacks begin between 2 and 7 a. m. More cases of gout are seen in the spring and fall than at other seasons. The months of March, April and May are the most popular months for the attack to occur in.

The Joints Involved: In the early attacks, as a rule, only the feet are involved, the bunion joints, ankles, arches and the Achilles tendons being affected. After about five years the knees become the seat of the attack. The upper extremities are involved only after the disease has been recurrent over a period of fifteen or more years. The wrists and elbows are the joints most frequently affected when the disease attacks the upper extremities. It is axiomatic that a diagnosis of gout should be made with care if the shoulders, hips and spine are involved in an arthritic process. Scudamore, in a series of 516 cases, found that a single great toe was affected in 314 (60 per cent), both great toes in 27; then in order of frequency, instep 25, ankle 15, knee 11, Achilles tendon 11, and hand nine. The great toe joint was the first joint affected in 60 per cent of Hench's 100 cases and in 90 per cent of Monroe's 61 cases. It should be noted that although the bunion joint is the joint most frequently affected that either the ankle, instep, Achilles tendon or knee are the first joints attacked in about 40 per cent of cases.

FACTORS THAT PRECIPITATE THE ATTACK

Gastronomic and Alcoholic Celebrations: An acute attack of gout is likely to occur during or following periods in which both food and drink are taken in excess. Christmas, New Year's, Thanksgiving, the Feast of the Passover, hunting trips, birthdays, lodge nights and sales conventions frequently precede an acute exacerbation. At these times a large amount of food high in purine content is ingested, leading to an increase in uric acid or the unknown (x) substance that precipitates an attack. The exact role alcohol plays in such cases is unknown but it is probable that alcohol raises the renal threshold of some substance normally excreted, interfering with its proper elimination. It should be remembered however that gout is not necessarily a rich man's disease and that the disease occurs in teetotalers, vegetarians and persons of moderate means. When the disease is found in the last named group of persons, it is likely that the ability of these individuals to handle purines is markedly impaired.

Following Trauma of Various Types: Many attacks of gout follow relatively mild trauma, as turns of the ankle, long automobile trips, standing on the rungs of a ladder, or a week-end of golf. Often these cases receive such diagnoses as sprained ankle, foot strain, fallen arches and traumatic arthritis. According to Hench, the number of arch supports that a patient has worn offers an excellent index of the length of time that the disease has been present. He noted that the World's Fair in Chicago brought a host of patients with gout to Rochester. The exciting cause in these cases was the trauma of unaccustomed exercise. The resultant disability of relatively insignificant trauma is out of all proportion to the trauma that precipitates it.

Surgical Procedures: Hench has stated, "An acute arthritis within the first six days after an operation is due to gout in 90 per cent of cases." This should be remembered because, if the opeartion is an alveolectomy or tonsillectomy such an arthritis is apt to be attributed to the "stirring up" of a focus of infection. In most cases of chronic infectious arthritis the nonspecific effects of the anesthetic, rest in bed and starvation produce an amelioration rather than an aggravation of symptoms.

Treatment for Some Associated Disease: Acute exacerbations of gout are apt to follow injections of salyrgan, liver extract, insulin, ergotamine tartrate and ketogenic diets.

The Association of Other Diseases: Gout is more common among persons with leu-

kemia and polycythemia than mere coincidence allows (Hench). The presence of uncontrolled diabetes, hyperthyroidism and metabolic disease in general makes gout more difficult to control. Treatment of the associated disease is necessary before proper control of the gout is obtained.

Emotional Disturbances: The disease is frequently difficult to control in individuals living in environments conducive to mental and emotional strain. Control of emotional factors renders acute exacerbations less frequent. Emotion in some unexplained manner makes the trigger mechanism that sets off an acute attack more sensitive.

Infection: Many authors believe that infection frequently precipitates acute attacks of gout. In my experience infection has not been prominent among the precipitating factors of acute seizures.

Lead Poisoning: Plumbism is mentioned by a number of authors as a factor responsible for many acute exacerbations. In a series of 61 cases, Monroe found six cases of plumbism. Allbutt cites several instances of patients in whom lead poisoning was a precipitating factor. Judging from the present day literature, lead poisoning is not as important a factor as it was formerly.

THE DIAGNOSIS OF GOUT

The classical features of gout are said to be tophi, podagra (painful bunion joint), hyperuricemia and roentgenographic evidence of erosion of articular and juxta-articular bone. Tophi are the one absolute pathologic proof of gout. They may be found in any location but have a peculiar affinity for structures having a poor blood supply. The cartilage of the ears was the site of predilection in 53 per cent of Hench's cases and 90 per cent of Monroe's. Other favorite locations are the olecranon and prepatellar bursae, Achilles tendons, the toe and finger joints. The absence of tophi does not exclude the disease. Hench states, "At a given time a physician may find tophi in only about 40 to 50 per cent of his total cases of gout." Women, it appears have tophi infrequently. Hench divides the course of gout into two great stages, each consisting of two phases. Stage I is that of acute recurrent gouty arthritis with complete remissions. (Phase 1 is that of early attacks, phase 2 that of late acute attacks with remissions.) Stage II is that of chronic gouty arthritis, (phase 3 is that of early chronic gouty arthritis with acute exacerbations but incomplete remissions. Phase 4 is the final relatively symptomless chronic gouty arthritis). Tophi are rare in phase 1, become more common in phase 2 and are invariably seen in stage II.

Podagra is, in the average physician's mind, the most characteristic feature of gout. In an analysis of 100 cases of gout, Hench found that the initial attack involved the great toe joint in only 60 per cent of cases. Other joints were affected in the remaining 40 per cent of cases. One of his patients with a total of 150 attacks experienced only 10 attacks in a great toe. The bunion joint was the first joint involved in 70 per cent of Scudamore's cases. One should not hesitate to diagnose gout in the absence of podagra.

Abnormal elevation of the blood uric acid level in phase 1 is transient, in phase 2 hyperuricemia is frequent but is not always present, in stage II it is always present. Hyperuricemia is not essential for a diagnosis of gout; however in the absence of leukemia, polycythemia, starvation, ketosis and nephritis it is significant, especially if a chronic arthritis is present. An elevation of blood uric acid values was seen in 72 per cent of Hench's cases.

Roentgenographic evidence of bony erosion in articular and juxta-articular bone in phase 1 is common, in phase 2 frequent and in stage II it is common. These signs are found as a rule only in the hands and feet and are the result of replacement of bone by urate deposits. Roentgenograms were positive in only 22 per cent of Hench's cases. This sign is a relatively late manifestation of the disease and cannot be depended on for early diagnosis. "In the absence of other data, a diagnosis of gout based on x-ray evidence of punched out areas of erosion in cases of arthritis is usually erroneous" (Hench). These changes occur in other diseases of bone as chronic

infectious arthritis, traumatic and senescent arthritis.

The classical signs of gout when present offer valuable evidence of the existence of the disease, but when absent do not exclude the condition. The characteristic clinical pattern, the features of the individual attacks while not pathognomonic are highly suggestive. Early diagnosis of gout depends on proper recognition of these classical signs and symptoms.

Lockie found that an acute attack of gout could be reproduced in the symptom free interval by a diet high in fat and low in carbohydrate and protein. Lockie and Hubbard, Lennox, Harding et al. have demonstrated that starvation and ketosis increase the amount of uric acid in the blood. Whether or not the increase in the blood uric acid is responsible for the acute exacerbations is difficult to determine.

SUMMARY AND CONCLUSIONS

The characteristic features of gout, tophi, hyperuricemia, podagra and erosion of articular and juxta-articular bone, may be lacking in a considerable number of cases of typical gout. The diagnosis of these cases depends on a clinical pattern, which while not pathognomonic, is very suggestive of the disease. Hench has so well discussed these features that Hollander's outline of the points emphasized by Hench is given below:

Suspect Gout When an Acute Arthritis Suddenly Develops:

1. After relatively trivial trauma;
2. After dietary excesses of holidays, birthdays and lodge nights;
3. After any surgical operation (acute postoperative arthritis is usually gouty);
4. After the trauma, exposure and dietary insults of a hunting or fishing trip;
5. In the spring and fall (gout has a definite seasonal incidence);
6. In the night between 2 and 7 a. m. (it may occur at any hour however);
7. In patients under certain coincidental treatments such as liver extract for pernicious anemia, salyrgan for dropsy, ergotamine tartrate for migraine, insulin for diabetes or the ketogenic diet for epilepsy or bacilluria;
8. In patients with polycythemia or leukemia;
9. In females only with extreme caution as it is rare, in this sex;
10. In men over 40 years of age. (This is the most common form of acute arthritis in this age group);
11. When an acute arthritis comes on with dramatic speed in a few minutes or hours;
12. When the pain is unusually severe, "the worst ever;"
13. When the great toe is acutely, not chronically involved (podagra however, may occur later or never in the course of the disease);
14. When the maximal tenderness is at the mesial aspect rather than underneath or on top of the bunion joint;
15. When the appearance of an involved foot is suggestive (warm, bluish-red rather than cold, bluish-white as in atrophic arthritis) with edema and later desquamation of the skin;
16. When an acute arthritis is of short duration (one to three weeks) and full restitution of function occurs;
17. When acute recurrent attacks of arthritis occur with complete remissions, possibly followed by chronic arthritis later;
18. When an olecranon bursitis is discovered or a positive history obtained (as this is several times more common in gout than in any other disease);
19. In patients with acute and chronic arthritis who have or have had chronic nephritis or renal colic (urate stones or gravel incidentally cast no roentgenographic shadow);
20. In a case presenting a number of the above features even when podagra (a common, but not inevitable feature), hyperuricemia, "characteristic roentgenographic changes," and tophi are absent. These are not early but rather late features of gout;
21. A last might be added, when an acute arthritis responds dramatically to colchicine.

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HYPERPYREXIA*

THE INDICATIONS AND COMPLICATIONS WITH AN EVALUATION OF RESULTS BASED ON 5,500 FEVER SESSIONS

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Hyperpyrexia, as induced by fever cabinets, has been applied to more than fifty diseases during the past ten years but the results in many of these were disappointing, whereas the benefits derived in other diseases proved to be of extreme value. Several hundred papers and articles have been written on various phases of the subject, and these many reports represent a vast amount of excellent work. I do not propose, in this paper, to cover more than a few important points concerning this form of therapy, and will give only a few of my own impressions as a result of the work done at the U. S. Marine Hospital.** An effort will be made here to discuss briefly certain fundamentals which are believed to be necessary in the proper management of artificial fever therapy, as well as to mention some of the indications, contraindications, reactions, and results of treatment.

APPARATUS AND PERSONNEL

For the proper administration of fever treatment a suitable apparatus is required. We have used only one type of cabinet, this being one that utilizes warm moist air to induce fever. The newer cabinets now in use are all metal and have as their principal parts for production of warm moist air, a small electric heater, a humidifier and a fan to circulate the warm moist air in the cabinet. An aid to the successful management of fever therapy is that of an electrical rectal thermometer which shows the temperature of the patient at all times. The fever is induced by keeping the patient's nude body constantly bathed in warm moist circulating air. Only the patient's head and neck are exposed outside of the cabinet. This cabinet has been found to be

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entirely satisfactory but many other cabinets have been reported by various workers as being satisfactory. It would appear, however, that the safest cabinets are those in which warm humidified air, near the saturation point, is constantly applied around the patient's body during the fever session.

Having selected the proper apparatus, it is imperative that the apparatus be limited to use in a hospital and never used in an office. It cannot be too strongly emphasized that fever sessions should always be conducted in a hospital where all possible complications of treatment can be treated more easily. In addition, the severity of the condition for which the patient is being treated may require hospitalization in itself. For the higher fever levels of treatment it is believed that the patient should in all cases be hospitalized until at least the next morning after completion of the treatment.

The next, and most important consideration, is the selection and training of personnel. A trained physician should be in charge of all fever sessions and should be constantly in attendance or nearby so that he can easily be summoned. He should know treatment procedures and reactions well, and should have sufficient experience to be able to select patients who can tolerate treatment as well as to prescribe the fever levels and duration of the fever sessions. Nurse-technicians should receive training for not less than one month before attempting to give a fever treatment, care being taken that the proper types of individuals are selected. In addition to more than average intelligence and pleasing personality, the nurse-technician should be one who is alert and at the same time calm. Many fever sessions have been terminated at the request of the patient because of lack of confidence in the nurse-technician. It might be stated also that the physician in charge of fever therapy can aid the nurse-technician greatly by an explanation of some of the phases of the treatment to the patient.

With the improvement in the apparatus and technic, together with a greater knowledge of selecting patients, and of reactions during and after treatments, there has evolved comparative safety in the administration of fever therapy. One example of the changes made is that of the humidified air in which the patient lies in the cabinet. In 1934, when an air-conditioned cabinet was first used, the temperature level in the cabinet ranged from 140 to 155° F. and the relative humidity was less than 55 per cent. The cabinet temperature was gradually decreased and the relative humidity increased, as experience by other workers showed that such an atmosphere was more desirable. At the present time the desired temperature level of 105 to 107° F. in the patient is maintained by a cabinet temperature of 105 to 112° F. and during the induction phase of the treatment the cabinet temperature ranges from 112 to 116° F. Under the former conditions of higher cabinet temperatures and lower humidity, 2.3 per cent of the treatments were discontinued because of cardiovascular reactions and 1 per cent because of delirium and convulsions. At the present time under the newer procedures such complications are rare. Some of the complications observed during fever therapy were nausea and vomiting, delirium and restlessness of varying degrees, tetany, burns, headaches, abdominal pain and distention, muscle cramps, heat stroke, circulatory collapse and herpes of lips, mouth and nose. Most of the reactions generally did not warrant cessation of treatment but at times the treatments were quite uncomfortable. Death may follow some of the more severe types of reactions.

COMPLICATIONS

With new advances made in fever therapy, the complications have been greatly minimized, and even the minor reactions are rare. Much less intravenous saline is required because of rarity of persistent nausea and vomiting. Burns rarely occur. There is less restlessness, and delirium is rarely seen. Circulatory collapse and heat stroke are extremely rare because with a more comfortable treatment the patient is able to ingest salt solution at a regular rate and the fluid seems to be absorbed more easily in the gastrointestinal tract. Previ-

ously there was not infrequently abdominal distention and pain due to the failure of fluid to be absorbed. This resulted in nausea and vomiting with a loss of the chloride supply to the body, and consequently brought the patient to the border of disaster before this was realized. In such cases intravenous chlorides with 5 per cent glucose were very beneficial in preventing the disastrous effects of chloride loss during high fevers. In a series of 5,500 fever sessions given to 985 patients there was one death due to hyperpyrexia. This death occurred in the early part of 1936, at a time when the higher cabinet temperatures and lower humidity levels were of eight to ten hours' duration at 104 the fever threatment had been completed. At this time the temperature elevated rapidly, and rose much above 107° F. with fatal results in a short time. Of the 5,500 fever treatments given, 555 fever sessions were of eight to ten hours' duration of 104 to 107° F., the greater number, however, were 105.5 to 107° F. for ten hours; 4,945 treatments were of three to eight hours' duration, the vast majority being at levels of 105 to 107° F. for five hours.

DISEASES TREATED

As stated at the outset, numerous diseases have been treated with hyperpyrexia, and as a result of the past few years' observations, some definite conclusions have been formed as to its value. In only a few diseases has this form of therapy proved of value. In others, sufficient time has not passed to determine the benefits, whereas in some diseases it is definitely known that fever therapy is of no benefit, and even may be harmful.

GONOCOCCAL INFECTIONS

We have treated about 30 different diseases by fever therapy, the largest group treated being gonococcal infections and their complications. We have treated a total of 567 patients with gonorrhea by fever therapy, these being divided into three main groups according to the type of treatment:

Group 1: Patients had five hour sessions of fever at 106-107° F. Average number of fever sessions 6.5; 352 treated (112—duration of gonorrhea one month; 166—duration one to six months; 74—duration over six months); 304 adequate observation and treatment; 252, or 82.5 per cent recovered.

Group 2: Those who received sulfanilamide, and failing to respond to this, were given fever at 106-107° F. for five hours. Average number of fever sessions 6.6; 42 treated (11—duration of gonorrhea one month; 23—duration one to six months; 8—duration over six months); 36 adequate observation and treatment; 26, or 72.2 per cent recovered.

Group 3: Those who received sulfanilamide or sulfapyridine and failing to respond were given 10 hour sessions of fever at 105-107° F. alone, or additional sulfanilamide or sulfapyridine with fever therapy. An average of 2.6 fever sessions were given per patient. In some instances where resistant arthritis was a complication, additional sessions of five hours' duration were given; 173 treated (98—duration of gonorrhea one month; 56—duration one to six months; 19—duration over six months); 165 adequate treatment and observation; 156, or 94.5 per cent recovered.

In a follow-up study in progress now 275 of the 567 patients have been rechecked as to recurrence of gonorrhea. Two hundred and forty-one of these patients completed their treatment from one to five and a half years ago and 34 from three months to one year ago. Of the entire group of 275, nine or 3.2 per cent of the patients had a recurrence. An additional group of 11 cases, or 3.9 per cent, had what was considered to be a new infection. This latter group had had repeated sexual exposure and had used alcohol repeatedly over periods of several months to five years. Then three to five days after sexual exposure to prostitutes, a typical acute gonorrheal urethritis appeared.

Very encouraging results were obtained in a group of 129 patients having gonorrheal arthritis. The results were as follows:

60 cases with duration of one month or less:

56 received adequate fever therapy and observation;
53 markedly improved to recovered;
2 moderately improved;
1 slightly improved.

45 cases with duration of one to six months:
42 received adequate fever therapy and observation;
35 markedly improved to recovered;
1 moderately improved;
6 slightly improved or not improved.

24 cases with duration of over six months:
19 received adequate fever therapy and observation;
14 markedly improved to recovered;
3 moderately improved;
2 slight or no improvement.

A follow-up of 52 patients who had attained marked improvement to recovery and who were followed for one to five and a half years showed that all except two had maintained this degree of improvement.

Another group of gonococcal complications were those having epididymitis, there being 160 such cases. All except five were promptly relieved by fever therapy. Ninety-eight cases of acute gonorrheal prostatitis showed excellent results due to fever therapy. Excellent results likewise were obtained in other gonococcal complications such as seminal vesiculitis, balanoposthitis, severe inguinal adenitis, peri-urethral abscess and pelvic inflammatory disease (only two cases of the latter complication).

SULFANILAMIDE AND FEVER THERAPY

When sulfanilamide first appeared it was believed that there would be very little use for fever therapy but while there were not as many cases as previously, there were still some 25 to 30 per cent of the patients who did not respond to sulfanilamide. For the most part sulfanilamide was given routinely to all patients with gonorrhea. Those who failed to recover were usually given fever therapy if they were good risks. Some have received sulfanilamide between fever sessions. Although we have been able to give fever as desired to most patients, there was a tendency for them to complain a little more about weakness and restlessness, together with nausea and vomiting, when sulfanilamide was given a few days before or between fever sessions.

Kendall, Rose and Simpson[1] have given sulfanilamide intravenously one hour prior to a fever session of ten hours. Their usual procedure in resistant cases of gonorrhea is to admit the patient to the hospital; and after a careful survey to determine his fitness for fever therapy, a test fever session is given at 105° F. for one to three hours. He then rests for one day and on the next morning receives an intravenous injection of a 1 per cent solution of sulfanilamide in physiologic saline one hour before the fever session begins. A fever session of ten hours at 106.6° F. is then given. The amount of sulfanilamide given is calculated on a basis of ¾ grain per pound of body weight.

The use of sulfapyridine may lessen the need of fever therapy but here, too, there are patients who have not responded to this drug. We have treated several patients with gonorrhea with the drug, but have not followed our cases long enough to form an opinion. Results, however, appear to be encouraging.

SYPHILIS

The next largest group of cases treated were patients with syphilis, there being 187 in this group. Since any form of therapy in syphilis cannot be evaluated in five and a half years, which is the longest any patient was observed, it is impossible to determine at this time just what the final results of fever therapy will be. Briefly, however, it can be said that fever therapy when combined with chemotherapy appears to be of value in the treatment of paresis, tabes dorsalis, asymptomatic neurosyphilis, acute syphilitic eye conditions, as iritis and the like, in cases of syphilis where the patient cannot tolerate arsenicals, and in seroresistant syphilis. Several workers have shown that fever therapy is a valuable therapeutic aid in the treatment of syphilis. Since 1935 Ebaugh, Ewalt and Barnacle[2] have been assigning alternate cases of neurosyphilis to malaria therapy and artificial fever. Some of their observations as a result of this excellent work are as fol-

lows: Clinical improvement of some degree was noted in 10 per cent more cases of the artificial fever group than in the malarial group. Physically induced fever caused more rapid response to tabetic pains and gastric crises, and with greater certainty. Patients of advanced age, or of generally poor condition may be treated with greater safety in the hypertherm. The results of treatment are definitely correlated with the amount of fever therapy given. Uncooperative patients are more easily treated with malaria, but, if powerful sedatives are used, physically induced fever may be given. Physically induced fever is more costly to administer, but they feel that this expense is justified by the better results obtained. They likewise believe that the advantages of physically induced fever seem to outweigh those of therapeutic malaria, but certain workers believe that the relapse rate will be less in the malaria series than in the physically induced fever series. Time will have to decide this issue. Bennett, Nielsen, Fechner, and Cash[3] state that the percentage of remissions in paretic dementia is 20 per cent greater after a full course of combined artificial fever and chemotherapy, than when malaria is used followed by chemotherapy. Krusen and Elkins[4] observed that the use of artificial fever in the treatment of dementia paralytica is becoming more extensive, but still feel that it is more efficient than malaria fever. They likewise emphasize that although the immediate clinical remissions seem higher than for therapeutic malaria, time will have to decide which offers the higher incidence of relapse. Simpson[5] stated that results in treatment of neurosyphilis and resistant seropositive syphilis with artificial fever therapy are comparable to therapeutic malaria.

MISCELLANEOUS CONDITIONS

We have treated seven men with venereal lymphogranuloma with fever therapy and very satisfactory results were observed. Fever therapy was used successfully in only four patients when it was discovered that sulfanilamide was an effective therapeutic agent in this disease. Now, fever therapy is reserved for those patients who react unfavorably to sulfanilamide, or who might not respond to sulfanilamide. Since early in 1938, 46 patients have been treated with sulfanilamide and fever therapy and all have responded promptly. These men were in the acute phase of the disease, having an average duration of 34 days before treatment was begun, and an average duration of 18.7 days after treatment was begun. In a similar group of 45 patients who had excision of glands the period of disability after surgery was 43.2 days.

Fifty-three patients with various eye conditions such as acute iritis, acute exudative choroiditis, interstitial keratitis, optic atrophy, gonorrheal ophthalmia, corneal ulcers which have resisted usual forms of treatment, and sympathetic ophthalmia, were treated. Very encouraging results have been observed in all of these conditions to date with the exception of optic atrophy due to syphilis. In this group, which is really too small to discuss, there has been noted only slight, to no improvement, and in one case the condition has progressed. Further observation of more cases is necessary before any definite statement can be made. Other workers have reported encouraging results, however, in optic atrophy.

In the arthritic group, 62 patients were treated who had acute infectious arthritis, chronic hypertrophic arthritis and chronic infectious arthritis. The results in the acute group have been encouraging, and in the chronic groups, good results were obtained in about one-third of the cases. In the remainder, only temporary, or no relief, was obtained. No ill-effects from fever therapy have been noted in this group, but ill-effects may result if fever of too high a level, or too long a period is given.

A few patients were treated who had neuritis, arthralgia, myositis, torticollis, acute non-specific epididymitis, and one with neuromyelitis optica, with apparent good results, but none of these groups are large enough to evaluate properly. Granuloma inguinale, thrombo-angiitis obliterans, erythromelalgia, Raynaud's disease, multiple sclerosis, hereditary ataxia, paralysis agitans, chronic encephalitis, asthma and

tuberculosis of the kidneys, have not been benefited by fever therapy in our experience. Eighteen persons with leprosy were treated with fever therapy and no beneficial results were obtained.

Good results have been obtained by other workers in diseases such as acute rheumatic fever, undulant fever, meningococcic septicemia, bronchial asthma, and Sydenham's chorea, but it is questionable whether enough work has been done to evaluate properly this form of therapy in these diseases. We have not treated any of these conditions, and have no opinion as to the value of fever therapy in this latter group.

Reviewing briefly, it can be stated that artificial fever therapy appears to have a place in the treatment of gonorrhea, syphilis, and acute exudative eye conditions. There is sufficient information to warrant its further trial in chorea, venereal lymphogranuloma, acute rheumatic fever, acute infectious arthritis, and, possibly, certain of the chronic arthritis cases, undulant fever, meningococcic septicemia, intrinsic intractable asthma, neuritis, arthralgia and myositis. It is doubtful that any value except possibly temporary relief in some instances may be derived in giving fever therapy in conditions such as tuberculosis, leprosy, granuloma inguinale, thromboangiitis obliterans, Raynaud's disease, erythromelalgia, multiple sclerosis, hereditary ataxia, paralysis agitans, chronic encephalitis, Hodgkin's disease, most chronic skin diseases and many other diseases.

CONTRAINDICATIONS TO HYPERPYREXIA

I believe that I should not close without touching briefly on the contraindications to fever therapy. Although usually not specifically mentioned as a contraindication, I would list an extrinsic factor as one of great importance; namely, that of referring a patient to an individual or clinic where fever therapy is not properly conducted. It must be emphasized over and over again that these departments should be in recognized hospitals, and operated by trained personnel who are capable of selecting properly the patients able to tolerate the treatment, assigning proper fever levels and preventing accidents and deaths by careful observation and attention to details before, during, and after the fever session. Secondly, fever therapy should not be given to those who have severe debility, cardiac disease, hypertension, chronic nephritis, pulmonary tuberculosis, and the like. The contraindications have been compared to those of a major surgical operation. It is difficult to consider all possible contraindications but, in general, one must study each individual case to determine the possible risk involved, and whether or not there is any condition present which will be aggravated by fever therapy, or result in death of the patient. This is a matter that can be decided only by experience and training, and that is why so much stress is placed upon the proper training of the personnel.

CONCLUSIONS

1. The air-conditioned cabinet has proved an effective means of inducing hyperpyrexia for therapeutic purposes at fever levels up to 107° F.

2. Fever therapy should always be administered in hospitals, and by properly trained personnel.

3. Improvements in fever cabinets and technic of treatment have greatly increased the comfort of the patient and lessened complications of treatment. One death occurred at the U. S. Marine Hospital, New Orleans, following fever therapy. The mortality rate was extremely low, since only one death occurred in 5,500 treatments given to 985 patients. No death has occurred in our series as a result of fever therapy for nearly four years.

4. Fever therapy appears to be a valuable adjunct to therapy in gonorrhea, syphilis, and acute exudative eye conditions. Sufficient good results have been reported to warrant its further study in venereal lymphogranuloma, neuritis, arthralgia, myositis, acute and chronic infectious arthritis, acute rheumatic fever, chorea, undulant fever, meningococcic septicemia and asthma.

5. Some of the contraindications to fever therapy and some of the diseases in which hyperyprexia has been used are briefly discussed.

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DISCUSSION

Dr. W. L. Smith (New Orleans): Dr. Trautman leaves very little to discuss in this paper and since I got all I know of the subject from him, I feel that he has covered the discussion very well.

I do not know a great deal about this subject. I have never given or taken a treatment. I have, however, during the last four years observed Dr. Trautman's methods, results and treatment and all I can do is to emphasize some of the points brought out by him.

Among the important points is the necessity for proper equipment and proper set-up, before attempting to do fever therapy. You remember when fever therapy was first introduced all sorts of instruments were devised for giving treatment. The day of the modified baking oven or "homemade barbecue pit" for giving fever therapy has passed. There are several types now which are suitable and all must protect the patient every minute.

Dr. Trautman mentioned personnel and particularly nurses. I want to emphasize that point: This sort of nursing is a very particular kind. These nurses are in constant attendance as long as the patient is in the apparatus. They are not allowed to leave the patient but are in constant and watchful attendance. Under Dr. Trautman's service in addition to the nurse there is also a doctor in attendance at all times. He is not allowed to leave that service and he must be a doctor who understands the dangers and complications which may arise as a result of fever therapy.

As to the patients, I want to emphasize the importance of proper selection of patients. It has been my experience that some patients are referred for treatment with such conditions that if fever treatment were given, it would prove fatal. Many patients have been refused treatment who were referred to the Fever Therapy Department because it was believed that they were unable to tolerate this form of therapy. Another thing is the pressure that patients bring to bear upon the doctor to give them the treatment. Any number of people come to the hospital because they know fever therapy is given there. These patients sometimes have incurable conditions but they have been led to believe that this treatment might do good and insist upon it. Unless there is some logical reason to feel that the treatment will do good, we are not persuaded by the patient's desire for the treatment.

With proper equipment and proper selection of cases, following the meticulous routine Dr. Trautman has mapped out, the results in certain types of disease are very satisfactory. It is amazing in some cases the results that are obtained from this form of treatment particularly, as mentioned, in syphilis, gonorrhea and eye conditions. I believe that this form of therapy is a useful measure if properly administered with proper equipment.

Dr. Simpson has said that this therapy has passed the honeymoon stage and has reached the stage of usefulness. It is not an ideal form of treatment but I think it is the best for some conditions. I feel that it will be found very useful and will have to use it until the happy time comes when we will be able to practice medicine with nothing more than a lard can of vitamins on one side and a washtub full of sulfanilamide on the other.

Dr. N. H. Polmer (New Orleans): Several hundred investigators have contributed more than 600 articles on the use of artificially induced fever in conditions and diseases ranging from adiposis dolorosa to undulant fever. Prominent among these have been the reports which have emanated from Dr. Trautman and his associates at the U. S. Marine Hospital.

With the continued use of fever therapy there has evolved, regardless of the make of apparatus used, a fairly standardized procedure. In fever produced by physical means, be it hot air, hot water, hot packs, diathermy, short wave diathermy, electromagnetic induction or thermostatically conditioned humid cabinets, the patient is placed in the current of the heating waves or in a controlled heated environment. There are several safe and efficient methods of producing this fever. Dr. Trautman's experience has been with the air-conditioned cabinet, mine has been with other electrotherapeutic methods. At present there seems to be little choice between the various cabinets, for a recent report from The Mayo clinic stated that 50 per cent of the patients favor electromagnetic induction, and the others favored cabinet with different arrangements. Of much greater importance than the apparatus used is the skill, experience and clinical vigilance of the physician, his nurse-technician and assistants in the application of the fever treatment.

I heartily agree with the statement that "Fever therapy should always be administered in hospitals, and by properly trained personnel."

Physically induced fever has the advantage over other forms of fever therapy in that no new disease is given the patient, no foreign protein shock is produced. The physician is enabled to control and regulate the onset, degree, duration, and decline of the fever.

Although fever therapy has been used in some fifty diseases, results which warrant further use

have been obtained in about only ten diseases. These have been enumerated by the essayist. Pre-eminent have been the successful results in gonorrhea and its complications, and in syphilis of the central nervous system. Dr. Trautman and his associates have treated and reported one of the largest series of cases with neisserian infection and its complications. Any complete discussion of fever therapy in gonorrhea must mention their work.

Combination of fever and chemotherapy in at least two diseases, gonorrhea and syphilis, has been found to be more efficacious than either treatment alone. These results may point the way to the combined use of physical therapy and medicinal therapy in other conditions.

In pointing out the advantages of fever therapy the essayist has judically called attention to its complications and contraindications. The most common untoward effects encountered are headache, restlessness, nausea, vomiting and muscular cramps. Herpetic lesions on the lips, and superficial burns on the body may occasionally occur. The serious complications however are circulatory collapse and heat stroke. By proper selection of patients, careful pre-treatment preparation, and clinical vigilance during fever treatment, most of these dangers can be eliminated and the difficulties overcome. The excellent therapeutic results obtained by Dr. Trautman and his co-workers in administering 5,500 fever sessions with but one fatality bespeak their familiarity with and careful attention to the finer points of technic. They are to be congratulated.

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RECENT ADVANCES IN THE STUDY OF PULMONARY DISEASES

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As the author of "The Education of Henry Adams" grew old, he was frightened by the acceleration of scientific investigation, industrialism, and mechanization which was taking place. Reduced to a mathematical formula, it seemed to him to be a fevered nightmare with no solution except awakening. Leaving such dreams and forebodings to the philosopher, our concern with this accelerated tempo is to keep up with the rapid flood of medical knowledge which it entails. Hence comes the need for frequent reviews of our advances in various fields. When Burton said, "No news here; that which I have is stolen from others," he referred to the classic authorities, quoted by him in his "Anatomy of Melancholy" in such profusion, whereas in the study of pulmonary diseases we need only to pick the brains of our immediate contemporaries to collect a wealth of presently applicable facts and methods.

Standing on the shoulders of the great pathologists and bacteriologists, and armed with instruments to penetrate the hidden secrets of the human body, physiologists, clinicians, and thoracic surgeons are adding daily to our knowledge of pulmonary diseases. The process of their subdivision into etiologic entities is almost complete. Understanding of the mechanisms of disease processes is rapidly increasing. And happily the development of thoracic surgery since the World War of 1914-18 and the recent revived faith in chemotherapy have ended an era of therapeutic nihilism to bring important new weapons to the hand of physician and surgeon in fighting pulmonary disease.

By the application of new methods and new instruments the anatomy, physiology, and pathology of the lungs have been restudied to great advantage. Bacteriology and immunology have attained a refinement of technic throwing new light on certain pulmonary diseases. The purpose of this paper is to call attention to some of these steps in the medical sciences and to illustrate their application in the diagnosis and treatment of certain pulmonary diseases.

ANATOMY

When the lungs were forbidden territory to the surgeon and when the most that the physician wished to know was—"which lung, or what lobe is involved?"—the student justifiably took little interest in pulmonary anatomy. Now, a detailed knowledge of their anatomy becomes increasingly important to internist, surgeon, and bronchoscopist.

The anatomy of the bronchial tree has been explored by bronchography and by the bronchoscope. By the study of chest roentgenograms in various planes after the instillation of radio-opaque oil, benign and

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malignant tumors of the bronchi can be discovered and localized. This method is of particular value in parts of the bronchial tree inaccessible to bronchoscopic inspection, such as the bronchi of the upper lobes. The greatest aid to early diagnosis of bronchiogenic carcinoma has been the more frequent resort to bronchoscopy as this method of exploration has become everywhere available. With the removal, through the bronchoscope, of a biopsy specimen a diagnosis of malignancy can be made early enough to make pneumonectomy feasible. An exact knowledge of the various bronchial branches and the corresponding areas of pulmonary parenchyma is also necessary in the removal of foreign bodies, in the drainage of abscesses, and in the performance of lobectomies for bronchiectasis of cystic disease.

The anatomy of the pulmonary vessels is equally important to the thoracic surgeon. As mass ligation of the lung root in pneumonectomy is replaced by a careful dissection and ligation of the vessels and bronchus, the exact situation of these vessels has been studied as well as their commoner anomalies. For example, with bronchiectasis of the left lower lobe it is found by bronchography that a bronchiectasis of the lingula of the left upper lobe occurs in about 80 per cent of the cases. A lobectomy of the lower lobe would, therefore, yield an unsatisfactory result. Injection studies by Churchill[1] have shown that this portion of the upper lobe has a distinct bronchus and blood supply. Therefore, when necessary, it is now possible to amputate the lingula of the left upper lobe wtihout difficulty at the same lobectomy operation.

The anatomy of the structures comprising the chest wall has also become of great interest to surgeons. A most striking illustration of this study has been the rapid introduction of the principles of apicolysis for tuberculous cavities in the lung apices as laid down by Semb.[2] He pointed out the bands of tissue which hold the parietal pleura above and medially at the apex; and he developed a technic for their severance. This has had a marked effect upon the surgical collapse therapy of pulmonary tuberculosis. Previously a patient in whom pneumothorax failed to collapse an apical cavity could not be treated successfully except by total paravertebral thoracoplasty, which was often contraindicated by the patient's general condition or by disease in the contralateral lung. Attempts at partial thoracoplasty had almost invariably been followed by revision operations which in turn failed to close the cavity. With the introduction of the Semb apicolysis it became possible to drop the lung apex down out of the costovertebral gutter and to limit the rib resection to the area of lung involved. The most recent step in this process of greater conservatism in the treatment of apical cavities has been the introduction of the procedure called, rather disarmingly, extrapleural pneumothorax.[3] An apicolysis is done through a resection of the third rib posteriorly, and a dead space is left between parietal pleura and ribs. This is maintained by air under positive pressure introduced through a needle. As this procedure has been in use for only three years, the ultimate fate of these dead spaces is not known. There are no reports of successful re-expansions of the lung. In many instances the air has been replaced with oil, creating a situation similar to the older "plombage." In others, as the patient's condition warranted, a partial thoracoplasty has been performed. The only advantage which such an operation can have over an apicolysis with partial thoracoplasty at the start is that it is less shocking and, therefore, can be performed on patients in poorer general condition. Whichever method is used, it has now become possible to solve the therapeutic problem presented by the patient with bilateral apical cavitation in a tuberculosis otherwise not extensive or necessarily fatal.

PHYSIOLOGY

In the field of normal and pathologic physiology many of the greatest advances have been made. The mechanism of external respiration in all its adaptability has come to be better understood. Forty years ago textbooks of physiology stated that complete paralysis of the diaphragm was fatal, yet we have seen both halves of the

diaphragm deliberately paralyzed to treat pulmonary tuberculosis. Similarly, we have learned how far we can go with bilateral pneumothorax. We have paralyzed the intercostals and the scaleni. We have combined various procedures, seeing patients recover from advanced tuberculosis after pneumothorax on one side and thoracoplasty on the opposite side, or almost any possible combination short of a total paravertebral thoracoplasty on both sides. Such boldness has been justified by a knowledge of the safe limits of the pulmonary reserve and better methods of studying this in each case. It has been tempered with caution because a satisfactory test of the respiratory-circulatory reserve has not yet come into use. With the use of such anesthetics as cyclopropane, which permits a high percentage of oxygen inhalation during operation, with tracheal administration of the anesthetic, and with improved methods of oxygen administration postoperatively, it is possible to operate successfully on many patients with greatly reduced vital capacity; but we would like some method of determining the functional ability of the lungs more accurately.

A number of recent studies show progress in this direction. The late Jacobaeus[4] devised a bronchoscope with an extra tube and inflatable cuff for differential spirometry of the two lungs. This makes possible a determination of the tidal air and vital capacity of each lung separately, which is at times extremely important information for the surgeon before attempting thoracoplasty or other operation on one side when the other is also diseased. Cournand and Richards[5] and Lindskog[6] have demonstrated that a study of the lung volume, including both vital capacity and the residual air, gives a truer picture of the patient's reserve before and after major thoracic operations than does the vital capacity alone. With the same recording apparatus the breathing capacity, i. e., the maximum ventilation per minute, can be measured, testing the actual efficiency of the pulmonary bellows. Respiratory function can be measured also by testing the effects of breathing air containing 16 per cent oxygen, as shown by Whitehead and Miller.[7] This determines the actual exchange of gases, and hence the pulmonary surface available for such an exchange, by comparative analysis of the alveolar air and arterial blood. In selecting patients for thoracoplasty in pulmonary tuberculosis, or for pneumonectomy in carcinoma of the lung, we can avoid disastrous anoxemia by eliminating those with an oxygen saturation of the arterial blood less than 85 per cent of that in the alveolar air by this test, or those with lung volume reduced below two liters.

The pulmonary circulation may be studied by the technic introduced in this country by Steinberg.[8] Roentgenograms of the chest taken at three, and six to nine seconds after the injection of concentrated diodrast solution into the cubital vein show exquisitely the pulmonary arterial and venous tree. This has been studied both in the normal subject and in persons with tuberculosis under various forms of collapse therapy. The method shows clearly the effect of disease and of collapse upon the circulation through the lungs. It will undoubtedly enable us to study better the effectiveness of these measures of treatment. It has already shown that there is an active congestion of the lung contralateral to tuberculosis and therapeutic collapse, confirming the deductions of Christie[9] from intrapleural pressure determinations. The application of this method of study will throw more light on other infections, congestions, and edema of the lung, although it is not a test suitable for routine study of patients.

The therapeutic use of various gases by inhalation has progressed rapidly. By the use of a special mask provided with a valve and rebreathing bag, Boothby[10] has made easy the use of oxygen concentrations up to 100 per cent. Fine[11] has pointed out the utility of such concentrations in speeding the removal of nitrogen and other inert gases from the blood and closed cavities in the body. In the treatment of pneumonia and other emergencies calling for oxygen administration it is probable that some such apparatus will largely replace the cumber-

some and expensive tent. The use of various concentrations of carbon dioxide, as first advocated by Yandell Henderson, has become general in resuscitation, as a postoperative procedure to hyperventilate the lungs and prevent shock, and in the treatment of postoperative atelectasis, or massive collapse of the lung. Barach[12] has demonstrated that helium and oxygen mixtures are more easily breathed than nitrogen and oxygen by the asthmatic. The experimental use of helium to replace nitrogen in diving was dramatically transferred directly from the laboratory of the Naval Medical Corps to the bottom of the Atlantic Ocean to make possible the salvage of the submarine Squalus, as recounted by Behnke.[13]

PATHOLOGY

The study of the pathology of pulmonary diseases has given us a dynamic conception of these processes to replace the static concepts obtained in the dead-house. By the study of surgical pathologic specimens, by experimental pathology, and by the deductions from roentgenograms, we are learning much more about the earlier evolution of lung disease. Descriptive pathology continues to make its contributions. For example, neoplasms of the lungs have been more intensively studied as they appear in increasing numbers under the microscope of the pathologist. Benign adenomata of the bronchi are recognized in biopsy specimens. It is now generally agreed that all primary carcinomata of the lungs are essentially bronchiogenic in origin. This unicellular histogenic concept was promulgated by Fried[14], namely, that the squamous cell type, the adenocarcinomatous type, and the undifferentiated cell or "oat-cell" type all spring from the undifferentiated basal cell. Halpert[15] has coined the term, "reserve cell," to distinguish this basal cell and the resulting type of carcinoma of the bronchus. It has been found that the three types occur in the proportion of 20 per cent adenocarcinoma, 50 per cent squamous cell type, and 30 per cent "reserve cell" type [15,16]. The "superior sulcus tumor" of Pancoast has been found to be a pulmonary carcinoma of bronchiogenic origin, arising in the terminal bronchioles of the lung apex [17,18].

It would be pertinent at this point to mention some of the newer methods of confirming the diagnosis of pulmonary carcinoma. Naturally, whenever possible, bronchoscopic inspection of the growth and biopsy for microscopic study remain the best methods. In cases accompanied by pleural effusion it is possible to replace the fluid by air and then to obtain a biopsy specimen from the pleura by using the thoracoscope, as reported by Soper and Oughterson[19]. After careful roentgenologic localization of the tumor, a satisfactory biopsy specimen was obtained by Craver and Binkley[20] with a needle in many cases where bronchoscopy had failed. The aspirated material is smeared on slides for examination. New methods for examining sputum for malignant cells have been demonstrated to be of value by Gloyne[21] and others. Cells obtained by aspiration of effusions can be examined by the method of Schlesinger[22]. With the definite arrival of pneumonectomy as an operation offering a good chance of life to the increasing number of patients with pulmonary carcinoma, all of these methods must be used to obtain earlier positive diagnoses, making operation possible.

Experimental pathology has thrown new light on an old disease, pneumoconiosis. The brilliant series of experiments carried on by Gardner[23] in the production of silicosis and asbestosis has shown the specificity of silicon dioxide (SiO_2) in the etiology of the former. Silica is a chemical poison with unique effect upon the tissues. The smaller the particles, the greater the effect. Certain other minerals, such as metallic aluminium,[24] carbon, hematite, and gypsum, have been shown to have an inhibitory action upon the production of silicosis in animals and in man. Asbestos, a hydrated magnesium silicate, produces a pulmonary fibrosis differing pathologically from silicosis. Unlike silicosis, asbestosis does not predispose to pulmonary tuberculosis. Also unlike silicosis, asbestosis is not readily produced in the experimental animal by finely ground dust. Gardner[25] concludes that "the moder-

ately long but stiff fibers of the unique mineral, asbestos, were mechanically irritating to the lungs as they moved in respiration." All of this exact knowledge recently obtained concerning the factors involved in the production of silicosis and asbestosis is being applied on a large scale to prevent these conditions in industry.

The pathologic basis and results of cystic disease of the lung have been newly studied by a number of workers. On the one hand this condition has been described as a forerunner of bronchiectasis, particularly of the dry, hemorrhagic type, by Sante[26]. The etiology of bronchiectasis remains obscure since it is an anatomic end result rather than a distinct disease of single causation. However, it seems clear that sometimes a congenital basis in the form of cysts exists. In other instances mechanical factors, such as bronchial obstruction, are responsible, as shown experimentally by Weinberg[27], and in all, infection eventually plays a part.

Congenital lung cysts have also been shown by Kjaergaard[28] to form the pathologic basis for the benign type of pneumothorax in certain cases. By studies of series of healthy young individuals with spontaneous pneumothorax the stigma of tuberculosis has been lifted from this group of cases. For example, Perry[29] reports that out of 114 cases of spontaneous pneumothorax, 85 occurred in previously healthy individuals, and none of these developed evidence of tuberculosis. Occasionally subpleural cysts or blebs can be demonstrated in good roentgenograms. In the rare cases dying of hemopneumothorax or of bilateral pneumothorax, the rupture of such a bleb or cyst has been demonstrated. More recently, following the description by Hamman[30] of a peculiar auscultatory crunch heard over the precordium in certain cases of pneumothorax, a number of papers have appeared confirming this finding. The pathologic basis in these instances appears to be an interstitial emphysema of the lungs with migration of some air out under the visceral pleura leading to its rupture[31]. It is possible that the original locus of the failure in continuity of the pulmonary air passages is here also a congenital bleb in the lung, although necropsy evidence for this is still lacking. Due to the favorable course of this condition pathologic proof is rarely, if ever, obtainable. This group of diseases,—cystic disease, bronchiectasis, and pneumothorax,—is coming to be much better understood and more accurately diagnosed, largely as a result of better roentgenograms more frequently taken.

Under the general heading of pathology, I should like to include advances in roentgenology, since this tool is in effect a technic for the study of pathology in life. There has been such a great improvement in both technic and in apparatus that few lesions of more than microscopic size cannot be detected and studied in the lungs, which are furnished by their air content with an ideal base for contrasting densities. For chest roentgenograms in the standard postero-anterior position, the technical improvement, now regularly obtained by the use of tubes with a small focal spot at four to seven feet from the film and a sufficient output to give a very short exposure, is marked. One has only to compare the average routine chest film of today with that of ten or even five years ago to appreciate this change. The more frequent use of lateral and oblique projections of the chest has also been shown to be of great value in many conditions. For example, Myers and Blades[32] have demonstrated that lateral roentgenograms of the chest often show a so-called "central" lung abscess to lie in the apex of the lower lobe. This point is equally applicable to tuberculous cavities at or slightly above the level of the hilum. King[33] has used lateral films to clear up the nature of lesions in the right middle lobe; and Rigler[34] shows their necessity in dealing with encapsulated interlobar effusions. New interest in mediastinal infections and abscesses, as shown in the recent literature[35], also has called for lateral and oblique films.

PHYSICAL STUDIES

Body section roentgenology, under its various names of tomography, laminagraphy, stratigraphy, has been found to be a particular value in the detection and

localization of pulmonary cavities overlaid by dense lesions or obscured by the changes resulting from thoracoplasty. As the closure of cavities has become the immediate objective of thoracic surgery for pulmonary tuberculosis, their detection and delimitation has become the crucial point in deciding upon the method of treatment to be adopted in each case. While there are relatively few cases in which good roentgenograms by the standard technic, supplemented if necessary by films made with the Buckey grid or with a fine fixed grid of the Lysohm type, will fail to show any cavity present, it is in these very instances of difficult decision that laminagraphs of the chest are most valuable. Moore[36] has shown this clearly. Sharpest delineation is obtained by apparatus designed and built specially for this purpose; yet Zintheo[37] described a simple and relatively inexpensive method whereby the ordinary x-ray table can be fitted to obtain tomographic chest films.

Photography of fluoroscopic images of the chest has been made possible by technical advances in the brilliance of fluoroscopic screens and in the speed and fineness of grain of photographic emulsions. At the cost of very little sacrifice of detail this method promises to answer the problem posed by original expense and storage space in the roentgenologic study of large numbers of people. Individuals in this country and in Germany have used cameras with fast lenses of the "candid camera" type to produce small pictures of the fluoroscopic image, which can then be projected up to the usual 15 by 17 inch size for reading. Such an arrangement is described by Griesbach[38]. It consists essentially of a camera set rigidly in a lightproof box a yard in front of a fast fluoroscopic screen and fine grid. The patient steps between the tube and screen and a short exposure is made. In this way it takes about a minute and a film costing ten cents to obtain a satisfactory record of the pulmonary condition in each individual. Only the smallest and least dense lesions are apt to be missed. The error involved has been estimated by those using this method as about two or three per cent. All doubtful cases or those showing lesions which require clinical attention are, of course, referred for chest roentgenograms by the standard technic. At present the commercial development of this method by the manufacturers of photographic and x-ray equipment is under way. In Germany it is being used in serial x-ray studies of large sections of the population to detect and to control pulmonary tuberculosis. Its greatest usefulness seems to lie in this field. The rolls of microfilm require little storage space. The New York City Department of Health is considering the use of microfilm reproductions of their huge collection of standard chest roentgenograms to obtain readily stored, permanent records[37]. For the roentgenologist and for the physician referring a patient to him for chest examination, such miniatures afford a valuable graphic record to file with the interpretation.

The frequency and importance of tracheobronchial tuberculosis has been rediscovered by the use of the bronchoscope. Long recognized by pathologists, this complication of pulmonary tuberculosis can now be diagnosed and treated before the terminal stage. Routine bronchoscopy of 272 cases of pulmonary tuberculosis by McIndoe[44] showed bronchial tuberculosis in 11 per cent and questionable involvement in another 5 per cent, an incidence in agreement with the findings of other observers. The ulcers and granulations are successfully treated through the bronchscope by Riggins[45] and others, by cauterization with the electrocautery or silver nitrate solutions and sometimes dilatation. Without treatment the prognosis of this condition is almost uniformly bad.

BACTERIOLOGY AND IMMUNOLOGY

Bacteriology and immunology, daughter sciences of pathology, continue to furnish important information about pulmonary diseases. Among the bacterial diseases, the greatest strides have been taken in our advance against two of the most lethal, pneumonia and tuberculosis.

In the diagnosis and in the decision as to the treatment of pulmonary tuberculosis it has been found that sputum examinations

are often impossible because expectoration is absent. Yet for proper treatment and prognosis an exact knowledge of the presence of an open lesion is necessary. The recent popularization of gastric lavage with examination of the fasting stomach contents for tubercle bacilli has gone far to solve this problem. Stiehm[40] and Kayne[41] report from 35 per cent to 75 per cent of minimal and early cases of pulmonary tuberculosis positive by this method. No case can be considered "closed" tuberculosis until the gastric contents have been shown to be free of tubercle bacilli by smear, concentration, and culture. Methods for the concentration and staining of tubercle bacilli in the sputum or other bodily fluids continue to improve[42]. The fluorescence microscope is reported by Herrmann[43] to furnish a more reliable as well as easier and quicker method of sputum examination than the staining methods.

The tuberculin patch test of Vollmer[46] has been shown to be reliable and equivalent to the Pirquet test or 0.1 mgm. of O.T. by the Mantoux test. This is particularly valuable in pediatric practice and in mass studies of children or young adults for case finding in tuberculosis, as this modernization of the older Moro percutaneous test is non-traumatizing, simple, safe, and economical. It will be used much more widely. The whole subject of the place of tuberculin testing in diagnosis with its value and its limitations is being restudied with profit by Long[47] and others.

The relation of tuberculo-immunity to allergy has been of great interest since the work of Rich and McCordock[48] demonstrated that immunity and allergy can be dissociated. In experimental animals Follis[49] has found antibodies and a decreased tendency to caseation with tuberculosis after complete desensitization to tuberculo-proteins. Willis[50] observed sufficient improvement clinically in a small series of desensitized patients to warrant further trial of this method of treatment in severe cases of pulmonary tuberculosis. The old tuberculin treatment is, therefore, possibly coming back under a more scientific control.

The condition called Boeck's sarcoid, or, by Pinner[51], non-caseating tuberculosis, is related to this problem of allergy in tuberculosis. While it cannot yet be considered proved that this is a form of tuberculosis, evidence is accumulating to that effect. It has come to be recognized that Boeck's disease involves not only the skin and lymph glands, but also the lungs and other viscera. In the lungs it simulates a disseminated pulmonary tuberculosis with a mild and benign course. There is, as a rule, a skin anergy to tuberculin. The pathologic picture is one of tubercle formation without caseation. Occasional persons later develop the ordinary form of tuberculosis when allergy reappears and tubercle bacilli may be found. If this condition is borne in mind by clinicians and radiologists, occasional cases in young adults calling for this diagnosis will be found.

The treatment of pulmonary tuberculosis continues to improve its results by the earlier and better selected use of the armamentarium of collapse therapy. With the prompt diagnosis and proper combination of hospital and collapse treatment, the case mortality rate from pulmonary tuberculosis should be reduced well below 20 per cent.

PNEUMOCOCCAL PNEUMONIA

Interest in the subject of pneumococcal pneumonia is so intense as a result of the new methods of treatment that the subject rightly calls for an entire paper devoted to its chemotherapy alone. Sulfapyridine comes to our aid at the instant that the serum treatment of pneumonia has graduated from the primary grade to become an effective measure against a number of pneumococci. Type specific serotherapy is shown by Thompson et al.[52] to be capable of reducing the pneumonia mortality below 10 per cent for Types I, II, V, VII, VIII, and XIV in patients under 40. Adequate dosage of rabbit antiserum must be given before the fifth day of the disease. Serum aids the patient's immunity and produces a true crisis, while sulfapyridine attacks the organism and holds it in check until the immune mechanism can act. Therefore, the two methods of treatment are truly supplementary. The more expensive serum

can be reserved for patients over 50, those with severe disease and bacteriemia, and those who cannot tolerate the drug or who fail to respond to it. For the first time a plan can be drawn up for the systematic and widespread treatment of pneumonia at the hands of the general medical profession. By the proper utilization of sulfapyridine and serum the mortality from pneumococcal pneumonia can be reduced to one-half or one-third of the present rate. The recent book of Heffron on pneumonia is recommended.

The introduction of specific pneumococcal polysaccharides for use in an intradermal test furnishes us with an exact control of the dosage of serum. MacLeod[53] reports that in 80 per cent of cases the necessary dosage was successfully checked by skin testing with type-specific polysaccharide. This has been confirmed by a number of other workers in the past year. The test becomes positive at once when an adequate dose of serum has been given. In this way it is possible that some economy in the use of serum may be effected. The test entails having on hand specific polysaccharide for each of the types of antiserum being used. Therefore, its use will probably be limited to hospitals and medical centers. In the prevention of pneumococcal pneumonia progress is reported by Smillie[54], using small doses of specific capsular substance (2 mg.) subcutaneously. This will protect for several months against the type of pneumococcus used. Under certain conditions, such as necessary exposure to Type I or Type II cases, or in pneumonia epidemics, such immunization may be of value.

In the difficult field of virus infections of the respiratory tract there are signs of some progress. Reimann[55] and Rainey[56], among others, report a type of pneumonia with characteristic clinical features and chest roentgenograms. Reimann was able to isolate an apparently specific virus in certain of these cases. Goodpasture et al.[57] have described the clinical course and the postmortem findings in cases of virus pneumonia in children. It is to be hoped that further study and new methods will throw more light upon the nature and prevention of the many infections of this general type, ranging from the common cold to epidemic influenza.

SUMMARY

There is little to say by way of comment. In the study of pulmonary diseases we are in the midst of the story. Perhaps one should conclude by the usual statement of the magazines, "To be continued." Our progress in learning the anatomy, physiology, and pathology of the lungs is bearing fruit in the medical and surgical treatment of many conditions heretofore ruinous to health and often fatal. The final chapter of that Odyssey is not yet in sight. The illustrations which I have selected are but a few of many possible, and perhaps not the best. Those interested will find in the medical literature of the past few years and in the journals of 1940 more detailed accounts of fundamental and derivative steps in the study of pulmonary disorders.

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THE NATIONAL PHYSICIANS' COMMITTEE

The full title of this organization is The National Physicians' Committee for the Extension of Medical Service. Furthermore it is a "non-political, non-profit organization for maintaining ethical and scientific standards and extending medical service to all the people." The Committee was organized as a trust last November, with a Board of Trustees and a Central Committee. The Central Committee has materially enlarged its membership. The officers and trustees are men who have been prominent in the American Medical Association and are recognized as outstanding physicians throughout the country. The Executive Board, for example, is composed of Dr. Edward H. Cary, Chairman; Dr. Austin Hayden, Secretary; and Dr. N. S. Davis, III, Treasurer. Such men as Drs. Irvin Abell, Roger I. Lee, C. B. Wright, W. F. Braasch, as well as others make up the Executive Board. So much for the Committee and its set up.

This Committee was established to fight the brave fight for organized medicine. The American Medical Association is primarily a scientific organization which does a tremendous amount of investigative and scientific work in practically all and every one of the various fields of medicine. It is absolutely and completely under the control of the medical profession. Because it is a non-profit, scientific, educational foundation, it is not required to pay income taxes nor social security taxation. Were the American Medical Association to extend its activities to certain economic branches of medicine there is absolutely no doubt whatsoever that the status of the organization would be reconsidered by the authorities in Washington and it would have to pay a huge income tax which would do tremendous harm to the organization and to medicine in general. The important Councils would have to restrict their activities, the special journals that are published without profit and at a loss frequently, would have to be curtailed or discontinued. Other important activities would have to cease were the income of the American Medical Association materially reduced did an income tax have to be paid.

The profession as a whole would be seriously affected by many of the various bills put forth not only in the Congress of the United States but also in various state legislatures. In order to fight bureaucratic control of the medical profession this group of men, "the minute men of Ameri-

can medicine," have been organized. Furthermore, it was felt that this group can publicize and keep informed the American public as to legislation which the average medical man would believe to be distinctly harmful to the population as a whole, both from the viewpoint of good medical care, and furthermore from the financial standpoint. Thus, for example, the Wagner Bill, were it put into effect, would probably cost the country as much as three billion dollars a year, an expenditure out of all proportion to do the hypothetical good the passage of this bill might do.

In order to function this Committee must have funds. A considerable amount has already been contributed by physicians. Some have given largely but it is only by very general contributions will there be enough money available to carry out the purposes of the organization. County medical societies already have subscribed in amounts varying from $50-$100; clinics and hospitals have done likewise but the contributions from the profession as a whole have been relatively small in number. So far approximately only 5,000 doctors have given any money. Doctors wishing to contribute may do so through their local committeemen or checks may be sent directly to the National Physicians' Committee, 700 N. Michigan Ave., Chicago, Illinois.

ENDOMETRIOSIS

It is really quite remarkable that a condition which was not popularized until the appearance of Sampson's paper in 1921 has become at the present day one of the most frequent conditions occurring in the practice of gynecology. According to Hooper,* gynecologists are reporting evidence of this condition in as many as one-third of all patients operated upon. Hooper wonders whether this is a new disease, and if so, why, or whether it is because the present day gynecologist is more acute in his observations of pathologic entities than was the man in the past. He doubts this. He speculates as to whether or not the modern interest in endocrinology may not have focused the eyes of the medical world on this condition. Be that as it may, in the last few years there has been a tremendous amount of writing on this subject. He hypothesizes also why is it some cases are invasive and others are not, why does the condition start, what limits its growth.

Suggestive of endometriosis are the following symptoms: Dysmenorrhea lasting throughout the period, backache, pain at time of ovulation, swelling of the groin, leukorrhea, rectal and bladder bleeding, nervous instability, as well as other symptoms. As a rule all these are not present and there may be only one or two. Occasionally there are no symptoms in the earlier cases which would suggest the possibility that endometriosis is present.

Hooper states that the disease can always be cured, but at what a price. If it is possible to make a diagnosis without operation, attempt to be conservative is his advice. On the whole, however, medical treatment is quite unsatisfactory. The patient may be carried along for a period of time, giving pituitary-like substances to control the menorrhagia, at the same time hygienic and symptomatic measures which include rest, sedatives, and dilatation and currettement which may be repeated from time to time. He suggests following this line of treatment for about a year and then finally probably having the patient come to operation. Conservatism is his plea, leaving an ovary or even a part of one so the patient may subsequently have children and while not cured they will be comparatively symptom free. He stresses the importance of the surgeon telling the patient that he is going to do only a conservative operation and that it may be necessary later to do a more extensive one. He says under these circumstances a patient has been given a chance. A radical operation necessarily has to be done on the older woman but in the younger ones attempt conservatism. A radical operation consists of bilateral oophorectomy, following which there is a remarkable regression of the masses. Mechanical adhesions must be cleaned up, it is not essential to remove

*Hooper, George: The diagnosis and treatment of endometriosis, Canad. M. A. J., 42:243, 1940.

surgically the secondary deposits of endometrial tissue. It is this complication of adhesions that makes the operation a severe one. Lastly, he suggests that under no circumstance following the radial operation should estrogenic hormones be given. They will bring about a recurrence of symptoms.

AN INTERESTING RESEARCH

At the recent meeting of the American College of Physicians in Cleveland the Johns Phillips Memorial Prize was awarded to Dr. René Jules Dubos of the Rockefeller Institute. Dr. Dubos is a member of the staff of Dr. Avery's department to whom this prize was awarded in San Francisco several years ago.

Dubos' studies really are a continuation of those of Avery who first stripped the capsule from the pneumococcus and made possible certain advances in the specific treatment of pneumonia. Avery's work was potentially a most important observation. Dubos' studies opened up this field of investigation still further. He has found that in the soil there occurs a spore-bearing organism which is destructive to many micro-organisms, notably pneumococcus, streptococcus and *B. diphtheriae*. The crystalline material extracted from this bacillus which is capable of exerting a tremendously powerful effect on bacterial organisms *in vitro*, is non-protein in character. So potent is this toxic substance that a fraction of a milligram will kill virulent pneumococci in two hours. In honor of Gram, of gram-stain fame, and because it works most specifically on the gram-positive organisms, this crystalline substance has been called "gramicidine."

The work of Dubos is still in the experimental stage. He has been able to show that in animals, at least, this material works almost miraculously. It will be interesting to observe what the results of this substance will be in the treatment of human beings. Nowadays the use of sulfonamide compounds in the treatment of so many acute infections has become so general and the results have become so satisfactory, really it is hard to concede that a preparation would be evolved which would be more satisfactory than sulfanilamide or sulfapyridine. Time will tell. It certainly would appear that the chemotherapy of the bacterial diseases has progressed rapidly within the last very few years. It may be that ultimately man will die only as result of automobile accidents, from the ravages of time on the vascular system, or from malignant disorders.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

TOURO INFIRMARY
New Orleans

On Wednesday, April 10, at 8 p. m., there was held the regular meeting of the Medical Staff. The following subjects were presented: Clinicopathologic Conference by Dr. John A. Lanford; Unusual Cases of Malignancy in Infancy, Dr. Charles J. Bloom; Elbow Injuries by Dr. Frank L. Loria.

HUEY P. LONG HOSPITAL
Pineville

During the month of February, 1940, the Huey P. Long Hospital, of Pineville, innovated weekly staff meetings which consist of general discussions and of clinical and pathological conferences at which all deaths are discussed and interesting autopsy specimens are presented. These meetings have been conducted under the supervision of Dr. O. W. McFarland, superintendent of the hospital, and Dr. John C. Connell, staff pathologist.

The following cases of interest have been presented since innovation of the meetings:

1. A case of tenosynovitis of one finger, which had been adequately drained prior to admission. Patient developed multiple bilateral lung infarcts with abscess formation, mural abscess of the heart and multiple kidney abscesses.

2. Two cases of bleeding in infancy were discussed: the first being a hemorrhagic disease of the new born; the second, acute leukemia in a six weeks' old baby. Vitamin K and its effect upon the prolonged prothrombin time in premature infants was discussed.

3. A case of a white male who presented the clinical picture of subacute perforating peptic ulcer

but at operation presented an apoplexy of the left gastric artery.

4. Several deaths from lobar pneumonia were discussed. The pathologic specimens showed that although the temperature decreased to normal and the toxic symptoms were relieved following the administration of sulfapyridine, nevertheless the pathologic process was still present and passed through the usual course of lobar pneumonia.

5. A case of a white male presenting an acute gangrenous cholecystitis with a ruptured gallbladder and a subdiaphragmatic abscess.

6. A case of subacute bacterial endocarditis associated with a six months' pregnancy.

7. Carcinoma of the tail of the pancreas with generalized metastasis.

8. Carcinoma of the pylorus of the stomach with generalized metastasis.

S. A. Barkoff, M. D., Sec.

HOTEL DIEU

New Orleans

The regular monthly meeting of the Staff of Hotel Dieu was held on Monday, April 15, 1940, at 8:00 p. m. in the Assembly Room of Hotel Dieu. The meeting was called to order by the President, Dr. Lucien A. LeDoux, and with the Secretary, Dr. C. E. Gorman, at the desk.

The Pathological Department presented a clinico-pathologic case report of a male child, two years of age, with a suddenly appearing tumor in the right axilla. This mass was excised and proved to be a cavenous lymphangioma with secondary hemorrhage.

The Scientific Program consisted of:

"Survey of Recent Advances in Radiology, Diagnosis and Treatment" by Dr. L. A. Fortier and Dr. T. T. Gately.

Dr. Max M. Green presented the following case report:

CALCIFICATION OF KIDNEY

The subject of tuberculous calcification of the kidney is fairly well covered in literature, but non-tuberculous calcification is little mentioned, except in case reports in connection with cysts, tumors, stones and pyonephrosis. Much experimental and pathologic work has been done by Virchow, Howland and others.

In the human body, calcification is physiologic or pathologic. Physiologic calcification is a normal process, concerned with the deposition of calcium in formation of bone. Pathologic calcification gives calcium salts in organs which do not ordinarily show it. Pathologic calcification is classified under two heads: (1) Metastatic; (2) non-metastatic. In the metastatic type, deposit of calcium occurs in normal or uninjured tissue, whereas in non-metastatic type it occurs where localized changes occur in the tissues (i. e. degeneration or necrosis from circulatory, toxic or metabolic disturbances) predisposing to calcium deposits.

The role of nephritis as a factor: Pathologic calcification of the kidney was called to our attention by Schmidt in 1913. It is believed to be due to decrease in solubility of calcium in the blood, caused by decrease in albumin of blood, which is caused by increased loss of albumin by the kidneys. The albumin substances and phosphorus normally act as buffers to keep calcium in solution and prevent its precipitation.

Dystrophic (non-metastatic) calcification is the most common type of pathologic calcification encountered. It is generally agreed that any dead or damaged tissue infected or not infected, so large or so situated that it cannot be absorbed, may become infiltrated with calcium salts. The degree of infiltration will be dependent upon the amount of degenerative changes, metabolic disturbances and amount of calcium in the blood. The exact physio-chemical change involved in this is a matter of conjecture.

Robinson, in 1923, demonstrated phosphatose in tissues undergoing calcification and in red blood corpuscles which had hydralizing effect on phosphorus and on hydrogen ion concentration. This condition is increased in certain diseases as osteitis deformans, rickets, osteomalacia (Kay).

Calicum in blood: 9-11.5 mg; 4-5.8 mg. held in solution by parathormone; 3-4 mg. by blood proteins; 2-3 mg. by natural solubility of calcium.

CLASSIFICATION

1. Metastatic: Hyperparathyroidism, rickets, fractures.

2. Non-metastatic: Acute and chronic nephritis, primary sclerosis.

3. Non-metastatic (dystrophic).

(a) Abscesses, tuberculosis, and acute pyelonephrosis.

(b) Obstructive, hydronephrosis and pyonephrosis.

(c) Tumors, cysts, polycystic.

(d) Injuries.

(e) Lithiosis.

1. Hyperparathyroidism: Deposits made in the epithelium of the tubules with fine granular casts. Urine sediment shows mainly calcium phosphates.

2. Rickets and renal rickets: Shows dwarfism with interstitial nephrosis with intratubular calcium deposits.

3. Fractures: Calculi may be seen: (1) Usually in some preceding kidney lesion; (2) In crystalloid colloid imbalance due to decalcification of injured bone.

4. Spinal lesions: Calcium deposits said to be due to withdrawn calcium from paralyzed tissues and blood.

Non-metastatic Calcification

1. Acute and chronic nephritis: Change in calcium and phosphorus metabolism in these diseases with a lowering in the calcium and an increase in the phosphorus.

Non-metastatic—Dystrophic

Pyelonephritis: Abscess of subacute or chronic type.

Tuberculosis: Calcification in tuberculosis has been considered part of the process and is a common finding. There are two types: (1) In ulcerated areas at or near tips of pyramids; (2) caseated areas in parenchyme.

Some believe that calcification represents stage of healing; others that it is part of general repair process. The latter view seems more logical. Argument against healing is that tubercle bacilli may be found in these calcified areas.

The incidence of calcification in renal tuberculosis is relatively high. Caulk, in 1915, reported 20 per cent; Braash and Olsen reported x-rays on 131 patients operated and found positive shadows in 22 per cent. Crenshaw found 30 per cent in occluded type in a series of 1817 cases.

Braash classified shadows in x-ray of renal tuberculosis under three heads: (1) Scattered small areas in the form of single elongated streaks or multiple punctate areas which are usually confined to one pole of the kidney; (2) single or multiple isolated and circumscribed areas which are of irregular outline and variable density; (3) large irregular shadows of variable density involving a large portion of the entire kidney.

The calcified shadows in tuberculosis are not so well defined as in stones, borders are indistinct and gradually fade into surrounding tissue.

CASE REPORT

Chief Complaint: Urinating blood.

Present Illness: Kidney trouble, 17-18 years, little or no pain until last four years; passed numerous small stones. Last March 4, 1939, he had bleeding from kidneys which lasted only a short time. Nothing was done except medicine by mouth. Had x-ray of kidneys about three years ago which showed stones in both kidneys. No cystoscopic examination has been done or other work-up, although he was advised to have a diagnosis worked out. Another attack of hematuria occurred March 3, 1940, passing small stones and blood clots; urine remained very red. Has been treated for hypertension for several years (3-4).

Past History: Childhood diseases. No injuries. Appendectomy? No history of tuberculosis or other systemic infections.

Family History: Father died of heart disease; mother living and well; seven sisters living and well; one sister died at birth. No history of carcinoma, diabetes or kidney trouble in family.

Physical Findings: Blood pressure 168/100. Well developed, well nourished white male, aged 44 years; not acutely ill. Thorax—distanct breath sounds all over chest. Abdomen—obese. No masses. Slight tenderness over both renal areas; unable to palpate either kidney. Extremities—negative.

Laboratory Findings: K. U. B. and pyelogram: Numerous bilateral renal calculi. Bilateral pyelogram shows ragged irregularity of upper calices on both sides and lawn calyx on left.

Conclusion: These findings are compatable with bilateral renal tuberculosis.

Chest: X-ray March 10, 1940, shows peri-bronchial infiltration; no evidence of pulmonary tuberculosis.

Blood Chemistry: March 7, 1940, N. P. N. 36 mg. Urine: 1.012; reaction, neutral; albumin, sugar acetone and indican, none; casts, none; pus, few cells; blood, many cells.

Blood Picture: White blood cells 8,750; polymorphonuclears 75; red blood cells 4, 700,000; hgb. 75; coagulation time 3′ 50″; bleeding time 2′ 30″.

Cystoscopic Specimen: Right—4 plus pus with clumps; 4 plus red cells.

Left—few pus cells with mucus; 4 plus red cells.

Bladder—4 plus pus with mucus; 4 plus red cells.

Smear and culture—negative in each case.

Wasserman—negative. Blood calcium 10.5 mg; blood phosphorus 3.2 mg.

Culture for tubercle bacilli negative for growth.

Cystoscopy: Bladder normal except for trigonitis. Both orifices normal; no evidence of tuberculosis in bladder. Bleeding from right side; No. 6 catheter up both ureters all the way easily; 10 c. c. bloody urine on the right; no stasis on the left. Indigo carmen appeared on the right in 5′ 25″; on the left in 3′ 25″; fair concentration on both sides.

Treatment: Indwelling right ureteral catheter, two days. Ceanathyn, one-half ounce every four hours. Koagmin 2 c. c. (h) three doses.

Conclusion: An attempt had been made to bring out some of the causes of calcification of the kidney, both physiologic and pathologic. The case presented here shows an extensive bilateral calcification of the kidney, which has evidently been present for a long time. The stones which he has been passing for eighteen years are probably the result of the same process which we find present today. An exact diagnosis cannot be made, but tuberculosis of both kidneys with extensive calcification appears to be the most logical conclusion in spite of the fact that we have been unable to obtain either tubercle bacilli or a positive culture for tubercle bacilli. A rather guarded prognosis should be given because of the extensive changes in both kidneys, whatever may be the exact cause.

DISCUSSION

Dr. Robert F. Sharp (New Orleans): The marked similarity of the interesting case that Dr. Green has just reported and a case which came under my observation, prompts me to report it briefly here. My case is of especial interest in so far as the condition has terminated fatally.

N. J. R., white male, aged 56, was first seen November 10, 1937, complaining of blood in the urine, recurrent attacks of fever and chills and renal colic on either side.

The high points of his present illness were that he had been passing blood in his urine off and on

since 1912 (twenty-five years). The condition was not severe until about 1921, at which time he was first cystoscoped and diagnosed as having tuberculosis of the kidney and renal calculi. The diagnosis of tuberculosis was not substantiated by the finding of tubercle bacilli in the urine; likewise, there was no evidence of tuberculosis in any other organ of the body. For the next sixteen years, he continued to suffer with the renal colic, chills and fever and to have hematuria. He passed small stones on different occasions. He received urologic treatment both in the out-patient clinic and in the hospital during this time. He was able to continue with his occupation as a railroad switchman, except during the attacks of renal colic, chills and fever.

When he presented himself to me, his condition was essentially the same as it had been the preceding several months, with the exception of more frequent attacks of hematuria, renal colic and fever. His general health had declined somewhat, but there had been no definite loss of weight. Urinary index:

$$\frac{\text{D } 8 - 10}{\text{N } 5 - 6}$$

and there was some burning on urination.

Past history and family history were irrelevant.

He was a well developed and well nourished middle-aged man, appearing to be in fairly good general health. There was slight tenderness over each kidney, anteriorly and posteriorly. The prostate was enlarged 2 plus, firm and sensitive; secretion showed 4 plus pus. Urine was grossly bloody, slightly alkaline, stained sediment showing a comparatively small number of gram-negative bacilli. Cystoscopy and pyelogram two days later, showed a low grade cystitis with no evidence of tuberculosis. There was about 25 c. c. stasis in each pelvis, which was cloudy and blood-tinged. Stains from each side were negative for tubercle bacilli. There were a few gram-negative bacilli present in each side. Kidney, ureter, and bladder revealed extensive bilateral calcification throughout the parenchyma, the left being more involved than the right. There were a few smaller shadows in the region of the pelvis and calices on each side. Pyelogram showed bilateral dilatation of the pelves with clubbing of the calices and dilatation of the ureters.

During the next four months, patient was seen by me only whenever he had a kidney colic or profuse hematuria occurred. The next information obtained after this was from his record at the I. C. Hospital. He was readmitted there October 15, 1938, in an apathetic state, unable to give an intelligent history. His temperature varied from 99° down to below normal. N.P.N. was 400 mg. per 100 c. c. blood. He died on October 26, 1938. No autopsy was performed.

Examination of the record of his six admissions to I. C. Hospital from 1922 until 1938, revealed an alkaline urine on every occasion except one. His urine was alkaline each time examined at my office. No culture for urea splitting organisms was done.

I do not, however, consider that this condition was caused by an alkaline infection, because of the marked calcification of the parenchyma and the comparatively small amount of calcareous material in the pelvis. The urine consistently showed a marked albuminuria even in the absence of blood. Repeated smears for tubercle bacilli during his illness were negative.

In view of the urinary findings, prolonged course, lack of evidence of tuberculosis of the bladder or in any other part of the body, I do not believe that this was a case of renal tuberculosis. For lack of a better diagnosis it should, in my opinion, be grouped with the so called "non-tuberculous calcifying pyelonephritides."

From the picture presented by Dr. Green, I am inclined to think his case is an earlier manifestation of the same condition.

Dr. Lucien A. LeDoux presented the following case report:

FUNCTIONAL UTERINE BLEEDING

Miss B. R., white, aged 20, was first seen on February 20, 1940, complaining of backache and menorrhagia.

Past History: Appendectomy four years ago. She had a high fever of undetermined origin in 1939, which lasted for three weeks.

Menstrual History: Began at 12 years of age, appearing every 28 to 35 days until December, 1939, when her period failed to appear for the first time. On February 15, about two months later, her menstrual period reappeared and it continued up to February 20, which is 15 days. The first week of its appearance, it was slow in starting but it became moderate in amount, dark in color and she passed large clots. She complained of considerable pain in the right lower abdomen and backache.

Present Illness: This dates from February 5. The pain in the lower abdomen and back and the bloody discharge persisted to February 20. She felt very nervous and weak. Her backache appeared aggravated when she sat down and she had frequent desires to go to stool. She gave no bladder symptoms.

Physical Examination: A thin, slender, medium sized female, who had the appearance of being very pale and weak. Her temperature was 89.8, pulse 74, respiration 18, blood pressure 100/75. The conjunctivae and mucous membranes of the mouth were anemic looking. There was generalized tenderness but no rigidity of the lower abdomen, the tenderness being more marked across the lower abdomen. No masses were palpable. The hymen was intact and a bright red vaginal discharge of moderate amount was noted.

Rectal examination revealed an enlarged boggy uterus which was in normal position and slightly

movable. Examination of the cul-de-sac and the parametrium gave the impression of fullness without distention. The adnexa was not palpable; as a matter of fact the pelvic survey was difficult, chiefly due to the generalized tenderness.

Laboratory Examinations: White blood cells 10,500, total red blood cells 3,800,000, hemoglobin 70 per cent; platelet count 200,000; coagulation time 2½ minutes; calcium 11. Urine (voided) negative, except for numerous white and red blood cells.

As the patient's condition was considered unfavorable, she was admitted to the Hotel Dieu the following afternoon with a diagnosis of functional uterine bleeding. She was put to bed on admission and placed on a medical regimen which consisted of mammary-corpus luteum extract, gynergen and cod liver oil concentrate. No other medications were employed. Laboratory examinations made the day following admission showed the following: Urine (voided) albumin, trace and many red and white blood cells. Blood: Total white cell count had dropped to 6,250 with 74 per cent neutrophils. The red cell count had also dropped to 3,160,000 with hemoglobin of 60 per cent and color index of 1.0.

Progress Summary: The patient's general condition improved soon after she was hospitalized. A marked diminution in the amount of vaginal blood loss, which was of a darker color, was noted at the end of 48 hours. Hormone therapy was suspended at this time and the following day the discharge reappeared but was reduced in amount and of variable color. After 48 hours, hormone therapy was renewed and gynergen was used. The discharge progressively diminished, clots were absent and the color became much darker. By the tenth day, the discharge had entirely ceased and she was discharged on the thirteenth day.

She has been seen several times since she left Hotel Dieu. A very definite gain in weight is shown and she states that she feels better than she felt in many months. The white cell count is 6,000, the red cell count has risen to 4,500,000 with a hemoglobin of 80 per cent, the calcium being 10. A normal menstrual period appeared on March 20, approximately one month after hemostatic hormone therapy was employed.

DISCUSSION

Dr. Louis Levy (New Orleans): While the value of endocrine extracts is recognized, they should not be considered a panacea as Dr. LeDoux has so cautioned. Mechanical defects, neoplasms should be at all times thought of. I will cite the case of a patient who after running the gamut of extracts, numerous curettages, bled to the extent that several transfusions were necessary. She was promptly relieved by the suspension of a uterus that was retroflexed and boggy and on elevation, contracted in my hands and retained its tonicity after the suspension. She is now free of bleeding between menstrual cycles. The duration of this relief is over ten years.

J. T. NIX CLINIC

New Orleans

At the meeting held in April, 1940, Dr. Manuel Garcia presented the following paper:

TREATMENT OF CANCER OF THE CERVIX

Reports from large clinics have shown very impressive improvement in the end results of the treatment of cancer of the cervix by radiation. In stage I the proportion of five year control has risen from 50-60 per cent to 83-100 per cent (Hurdon, Meigs, Schmitz); the change is even more remarkable in stage IV cases, the gain being from 0-7 per cent to 25-36 per cent (Schmitz, Lacassagne). Intermediate stages show corresponding betterment, while for all cases treated the average of "cures" has climbed from around 28 per cent to 41.2, 46.8, 52.6 per cent (Hurdon, Lacassagne, Schmitz). In the face of such results the treatment of patients afflicted with cancer of the cervix becomes a very serious responsibility. It would seem advantageous to examine the reasons for this fortunate trend and to consider the possibility of offering such improved outlook to the patient remote from centers of clinical cancer research.

The most striking finding in the literature is the fact that good results are obtained by a wide variety of methods of radiation. Some have interpreted this to mean that technic is not important and that any scheme can be successful provided a sufficient number of early cases or of patients with radiosensitive tumors apply for treatment. Yet no correlation has been shown between improved results and the proportion of favorable cases in successive series reported by several institutions. Frazell has demonstrated a direct relationship between the dose of radiation given to the entire neoplasm and the incidence of five year survivals. It would be more proper, therefore, to say that the various successful technics are different ways of approaching the same goal—the delivery of an effective amount of energy to the primary lesion and to its routes of spread in the pelvis.

This may seem an obvious essential, especially in the light of experiences with the evolution of the surgical treatment of carcinoma of the cervix. But the majority of technics in vogue ten years ago, and even more recently, were intended principally to destroy the cervical tumor and failed to take care of the actual or potential extensions of the disease in the parametrium and the pelvic nodes. This shortcoming has been remedied to some degree by the medical improvements in x-ray equipment, by progress in the methods of measuring and calculating the physical distribution of radiation in the human pelvis, by the introduction of means of enhancing the tolerance of normal tissues to larger doses and by a better understand-

ing of the amounts of radiation needed to kill cancer cells. In addition, the statistics reflect refinements in the clinical management of the patient, such as the greater attention devoted to the urinary obstruction almost invariably associated with the disease, and to the infection of the tumor and the perimetrial tissues. Sepsis is responsible nearly always for the mortality of radium therapy and may alter the plan of treatment to such a degree that the prognosis for the individual patient may become much poorer.

Lucas and Arneson have independently made careful studies of the physical efficiency of different schemes of applying radium to the cervix. They point out that at least two capsules of radium must be employed in the cervical canal to reach the upward extensions of the disease. With beta ray filtration only doses in excess of 3,000 mg. hr. increase the likelihood of serious injuries to the bladder and rectum without improving the effectiveness of the irradiation to the lateral extensions of the tumor. Supplementary radium is preferably used in some vaginal applicator. Physical considerations alone favor the French technic, which, with a total dose of sixty millicuries destroyed, gives adequate irradiation to the cervix and adjacent structures and in addition delivers a significant amount to the parametria. But it has a greater risk of infection and anatomic changes (narrowing of the vault) may make the method unsuitable. Both authors conclude there is no "ideal" method, to be used by preference in all cases. As in all fields of medicine, treatment must be individualized. It is significant, however, that large amounts of radium have no inherent superiority and that the competent physician may secure the full benefits of radium therapy with the small amounts available in all institutions.

Lacassagne has reviewed 79 cases with the carcinoma clinically limited to the cervix, treated by intracavitary radium alone. Three-fourths of the patients survived five years in good health. The remainder died almost entirely of cancer, usually reappearing at a distance from the zone of effective dosage. These excellent results obtained by a group of experts still show that radium alone even in the earliest carcinomas cannot always be expected to sterilize the neoplasm since quiescent cells may lurk beyond reach of gamma radiation. Supplementary treatment is required. Lacassagne himself points out in a group of cases in the same clinical stage in whom external x-ray or teleradium was employed, the five year results improved to 85 per cent. Interstitial radium therapy as tried from below by Arneson or through a laparotomy wound by Delporte and Cahen, Dodd and Cade, and by others, may prove useful in the more advanced stages of the disease but the methods are still on trial and they carry certain dangers, which require they be adopted with caution.

In Healy's service in the Memorial Hospital of New York, and in most other institutions, x-ray therapy is used to control the disease in the parametria and the pelvic nodes. It is used before radium in an attempt to clear up cervical infection and bleeding. The technic was worked out by Arneson and Quimby and may be carried out in any institution with a 200 KV machine. By using six ports, long distances, and high filtration, the skin can receive over a period of three weeks or more enough radiation to deliver about half the cancer lethal dose to the parametria and the pelvic wall in a woman of average size, without serious injury to the skin itself, the bladder, the rectum or the intestines. With supervoltage equipment the depth dose is increased but experience is as yet too recent to establish the necessity of treating all patients with machines running above 200 KV.

Wintz, Baclesse, and many others have used external x-ray therapy as the sole method of treatment when radium application was contraindicated, or unsuitable or rejected by the patient. In a small series of advanced cases Baclesse obtained 36 per cent five year control. A greater total dose, more ports, more distance and a longer period of treatment are required. In Germany ingenious x-ray tubes have been designed for intravaginal radiation of the primary lesion and the parametria. Merritt of Washington, uses intravaginal x-ray therapy as a substitute for radium in some cases. The cervix is exposed with a Ferguson speculum and aligned with a narrow cone attached to an ordinary high voltage x-ray apparatus. Dr. Robert W. Cooper introduced the method at Charity Hospital several years ago. It has proved useful in the management of patients with severe infections or with very bulky tumors.

SUMMARY

Improved results are being reported in the treatment of cancer of the cervix by radiation. The aim of treatment obviously is to deliver an effective dose of energy to the primary lesion and to its routes of spread. Intracavitary radium may be expected to destroy the lesion in the cervix and adjacent structures, but must be supplemented by large doses of x-ray to reach the disease in the lateral zones of the pelvis. These agents are available everywhere and their proper employment can be expected to yield results approaching the figures reported from large centers. Supervoltage equipment and the use of radium interstitially in the parametrium are still on trial as means of improving the results in advanced stages of the disease.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

May 1. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.

May 2. Clinico-pathologic Conference, Touro Infirmary 11:15 a. m. to 12:15 p. m.

May 6. Orleans Parish Medical Society Board of Directors, 8 p. m.
Clinico - pathologic Conference, Hotel Dieu, 8:15 p. m.

May 7. Eye, Ear, Nose and Throat Staff, 8 p. m.

May 8. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Touro Infirmary Staff, 8 p. m.

May 13. Orleans Parish Medical Society, 8 p. m.

May 14. Eye, Ear, Nose and Throat Society, 8 p. m.

May 15. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Charity Hospital Surgical Staff, 8 p. m.
New Orleans Tuberculosis Hospital Staff, 8 p. m.

May 16. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

May 17. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary for Women and Children Staff, 8 p. m.

May 20. Hotel Dieu Staff, 8 p. m.

May 21. Charity Hospital Medical Staff, 8 p. m.

May 22. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center 2 p. m.
French Hospital Staff, 8 p. m.

May 23. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

May 27. Joint Meeting of the Orleans Parish Melical Society with the New Orleans Tuberculosis Committee, 8 p. m.

May 28. Baptist Hospital Staff, 8 p. m.

May 29. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.

May 30. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

May 31. L. S. U. Faculty Club, 8 p. m.

During the month of April the Society held one regular scientific meeting and the first quarterly executive meeting, April 8. The following program was presented:

1. Biographical Sketch: Bennett Dowler, New Orleans Physiologist, 1797-1879.
   By.....Dr. H. S. Mayerson.
2. Symposium on Geriatrics:
   a. General Discussion of Geriatrics.
      By.....Dr. Isidore L. Robbins.
   b. Nervous and Mental Aspects.
      By.....Dr. Theodore A. Watters
   c. Medical Aspects.
      By.....Dr. Allan Eustis
   d. Surgical Aspects.
      By.....Dr. Isidore Cohn
3. Reports of Officers and Committees, First Quarter, 1940, were read.

The Society was host to the Louisiana Medical Society April 22-24. This meeting was well attended and an excellent program presented. It was the best meeting in the history of the Society.

The following doctors were elected to active membership: Drs. Lawrence W. Burt and Zachary J. Romeo. Dr. Frank W. Young was elected to associate and Dr. Henry E. Menage to honorary membership.

NEWS ITEMS

The Yearbook of General Therapeutics has appointed Dr. Oscar W. Bethea as editor.

Dr. Grace Goldsmith has been elected to Fellowship in the American College of Physicians.

Dr. Richard S. Crichlow was recently promoted from the rank of major to lieutenant colonel in the Army Reserve Corps.

Dr. Cosmo J. Tardo was installed as President of the Virgilian Society of New Orleans, March 26, to succeed Dr. E. A. Bertucci.

Dr. A. J. Hockett presented a paper before the meeting of the Southeastern Hospital Conference, March 28, at Edgewater Park, Miss., his subject being "Practical Business Methods in Dealing with Patients." Dr. Hockett was elected president of the conference for the coming year. New Orleans has been selected as the 1941 assembly site.

Dr. Clarence P. May addressed the Exchange Club on March 26.

Dr. Maurice Campagna was recently appointed medical director of the Orleans Tuberculosis Hospital.

On March 28 and 29 a seminar for physicians of ten surrounding parishes was conducted at the Lafayette Charity Hospital, Lafayette, by the following members of the faculty of the Louisiana State University Medical School: Drs. Gilbert C. Anderson, Richard Ashman, Charles A. Bahn, Isidore Cohn, C. Grenes Cole, Joseph A. Danna, Val H. Fuchs, Peter Graffagnino, James K. Howles, Walter E. Levy, John R. Schenken, Daniel N.

Silverman, H. Theodore Simon, Edwin A. Socola, Carlo J. Tripoli and Henry W. E. Walther.

During the annual health week observed by the Young Women's Christian Association, March 25-30, the following members of the society gave talks: Dr. Warren H. Hebert, March 25; Dr. Clarence P. May, March 27; Dr. M. T. Van Studdiford, March 28, and Dr. Guy A. Caldwell, March 28.

Dr. Roy B. Harrison was elected President of the Missouri-Pacific Hospital Association, which met in New Orleans, March 28.

The Louisiana League for the Hard of Hearing re-elected Dr. Otto Joachim as president at the tenth annual meeting of the organization, March 29. Dr. Arthur I. Weil was elected second vice-president and Dr. Frank R. Gomila, third vice-president. Dr. Val H. Fuchs was named to the board of directors.

The Southern Baptist Hospital staff held its annual banquet at Kolb's Restaurant, March 26, when the following officers were installed: Dr. Charles L. Cox, president; Dr. John T. O'Ferrall, vice-president; Dr. E. Garland Walls, secretary and Dr. Robert F. Sharp, treasurer.

Dr. J. Sauter Muller has been appointed house physician at the new Bienville Hotel.

The following members attended the meeting of the American College of Physicians in Cleveland, April 1-5: Drs. Joseph S. D'Antoni, Grace A. Goldsmith, Ben R. Heninger, Edgar Hull, Philip H. Jones, Jr., Louis A. Monte, John H. Musser and Joseph C. Weilbaecher, Jr.

Dr. Henry Leidenheimer, Jr., presented by invitation a paper, entitled: "Vitamin K and Its Relation to Hemorrhagic Diseases of the Newborn," at the meeting of the New Orleans Gynecological and Obstetrical Society, March 25.

Drs. William H. Gillentine and Neal Owens read papers before the Southern Society of Orthodontists, which met in New Orleans, April 2.

Dr. Michael DeBakey addressed the Shreveport Medical Society, April 9, on the subject of "Perforated Peptic Ulcer."

Dr. Alton Ochsner read a paper on "Peripheral Vascular Disease" before the Escambia County Medical Society, Pensacola, Florida, April 9.

The New Orleans Dental Society celebrated the one hundredth anniversary of the establishment of dentistry as a profession during the week of March 11-18. Talks were given before luncheon clubs and over the radio. Dr. M. B. Varnado was the principal speaker at the banquet held March 11 at the Roosevelt Hotel, talking on "One Hundred Years of Dentistry." Dr. Andrew V. Friedrichs and Dr. Sidney L. Tiblier gave short addresses.

TREASURER'S REPORT

Actual book balance 3/31/40	$4,911.31
March credits	$1,400.94
Total credits	$6,312.25
March expenditures	$ 971.74
Actual book balance 3/31/30	$5,340.51

LIBRARIAN'S REPORT

During the first quarter, 220 volumes have been added to the Library. Of these 142 were received by binding, 41 by gift, 2 by purchase and 35 from the New Orleans Medical and Surgical Journal. New titles of recent date have been listed in the Bulletin and in the Journal.

The Library has loaned to doctors during the same time, 3,392 books and journals or more than 6 to each member of the Society. An additional 3,162 items have been loaned to students for overnight use, bringing the total number of books and journals circulated to 6,554, the largest quarterly circulation in the history of the Library. Members of the staff have collected material on 39 subjects during the quarter. The reference work, it should be noted, is in addition to the great use of the Library facilities within the Reading Rooms for calls which can be filled immediately by consultation of the indices or the card catalog.

Edwin L. Zander, M. D., Sec.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in June	Jackson
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Friday in May	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

RAND—PRESIDENT-ELECT

The many friends of King Rand in the medical profession will be delighted to know that he was selected as President-elect of the State Medical Society at the New Orleans meeting. Shreveport was chosen as the place of the 1941 meeting. As this information was received after going to press, it is impossible to print more than a bare statement. A full account of the meeting and the officers elected will appear in the next number of the Journal.

OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting was called to order April 4, 1940, at 7:45 p. m. by Dr. D. T. Milam, president. The minutes of the meeting of March 7 were read and approved.

Dr. J. Q. Graves presented a paper on "The Drainage and Treatment of Appendiceal Abscess." This was discussed by Drs. McHenry, Gray, O'Donnell, and Walsworth. Dr. A. Scott Hamilton presented a case of giant cell tumor of bone which had undergone malignant changes. Discussion ensued by Drs. Gray and Moore.

The report of the executive board for the tuberculosis survey and hospital was given by Dr. C. P. Gray, chairman. The board recommended, in the case of the survey, that as far as the positive reactors were concerned, all those who could pay, be sent to a radiologist for x-ray and that the indigent patients be x-rayed by the Tuberculosis Sanatorium. In regard to the staff of the Tuberculosis Sanatorium, the board recommended that each individual member of the Ouachita Parish Medical Society apply for appointment on the staff, the society, officially, not to take any action as to appointment to the staff. A motion was made by Dr. O'Donnell, seconded by Dr. Simonton, that the board file a written report with the secretary; this was carried. Dr. Fisher moved that the report as given be accepted; this was seconded by Dr. O'Donnell and carried.

A letter from the National Physicians' Committee was referred to the Committee on Public Policy and Legislation to be reported on at the next meeting.

Dr. Milam announced that the L. S. U. Extension Service was anxious to present a program before this society, but that it would be more convenient for them if the meeting was held on Friday. Dr. O'Donnell moved that Dr. Milam be appointed a committee of one to make arrangements in New Orleans for this program and that the society meet on the first Friday in May. This was seconded by Dr. Walsworth and carried.

A telegram to Dr. Bendel from Dr. E. L. King in regard to Wassermann tests on pregnant women and Dr. Bendel's answer opposing such a program were read. The telegrams were discussed by Drs. Walsworth and Hamilton. Dr. Walsworth moved that the delegates from the Ouachita Parish Medical Society to the Louisiana State Medical Society be instructed to oppose any legislation at the State Meeting in regard to compulsory Wassermann tests on pregnant women and that the delegates cooperated with Dr. Bendel in this regard. This was seconded by Dr. Simonton and passed.

A letter from Dr. Nat Gaston, President of the Louisiana State Dental Society, inviting all members of this society to be guests at the meeting of the Dental Society here, was read.

A letter from Dr. J. P. Kranz, Secretary of the Southern Tuberculosis Conference, was read.

A letter from the Rapides Parish Medical Society inviting us to present a program at Alexandria on May 6 was read. Because of the fact that L. S. U. is presenting a program here at that time, this was refused with thanks.

L. L. Titche, M. D. Sec.

COMPONENT SOCIETY OFFICERS
1940

CONCORDIA-CATAHOULA BI-PARISH

President: Dr. N. L. Sebastian, Ferriday.
Vice-President: Dr. E. M. Campbell, Ferriday.
Secretary-Treasurer: Dr. John Schreiber, Vidalia.
Delegate: Dr. P. W. Calliham, Harrisonburg.
Alternate: Dr. John Schreiber, Vidalia.

BOYCE AWARDED GROSS PRIZE

Dr. Frederick Fitzherbert Boyce, Assistant Professor of Surgery in the Graduate School of Medicine of Louisiana State University, has been awarded the 1940 Samuel D. Gross Prize for his research work entitled "The Role of the Liver in Surgery." The prize is offered every five years by the Philadelphia Academy of Surgery, for original research work in the field of surgery, and is in the amount of $1500. By the terms of the award the material is later published as a monograph.

Among previous winners of the Gross Prize, which is regarded as one of the most distinguished awards to be given in the field of surgical research, are:

Dr. Evarts E. Graham, Professor of Surgery at Washington University School of Medicine, and now President-elect of the American College of Surgeons, who won it in 1920 for his work on empyema.

Dr. John Alexander, Professor of Surgery at the Medical School of the University of Michigan, who won it in 1925 for his work on the surgery of tuberculosis.

Dr. Emile Holman, Professor of Surgery at Stanford University Medical School, who won it in 1930 for his work on arteriovenous aneurysm.

Dr. Owen H. Wangensteen, Professor of Surgery at the University of Minnesota School of Medicine, who won it in 1935 for his work on intestinal obstruction.

Dr. Boyce, the recipient of the 1940 quinquennial award, was formerly full time Assistant Professor

of Surgery at L. S. U., resigning in 1939 to enter the private practice of surgery in New Orleans. He received the B. S. degree from Harvard University in 1927 and the M. D. degree from Yale University Medical School in 1930. He served an internship and surgical residency at Union Memorial Hospital in Baltimore. He is a Fellow of the American College of Surgeons and was the first man in Louisiana to be certified by examination by the American Board of Surgery. In 1939 he was awarded the annual prize ($100) and medal of the Mississippi Valley Medical Society for his work on thyroid disease.

AMERICAN COLLEGE OF PHYSICIANS

A large and enthusiastic meeting of the American College of Physicians was held in Cleveland, April 1-4, 1940. Attending from Louisiana were: Drs. Joseph E. Knighton, T. P. Lloyd, W. R. Mathews, M. W. Matthews, W. Mastin Scott and Stanley G. Wolfe, of Shreveport; Drs. Ben R. Heninger, Edgar Hull, J. H. Musser, Grace A. Gold-Smith, P. H. Jones, Jr., L. A. Monte, J. O. Weilbaecher, Jr. and Joseph S. D'Antoni, of New Orleans; Dr. M. W. Hunter, of Monroe; Drs. O. O. Antony and Earl Jones, of Alexandria.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The annual meeting of this organization will be held at the Biltmore Hotel in New York City, June 8-10, with Dr. George Ornstein as General Chairman of the Scientific Program Committee.

For this meeting a program of scientific papers, clinics and roundtable luncheons has been provided. A group of excellent physicians will be on the program, men skilled in bronchoscopy, roentgen ray diagnosis, medicine, and surgery and so on. Details of the program may be obtained in the office of the Journal.

The twenty-fifth annual meeting of The American Association of Industrial Physicians and Surgeons, together with the first annual meeting of The American Industrial Hygiene Association will be held at Hotel Pennsylvania, New York City, June 4-7, 1940. Problems of industrial health in all of their various medical, technical, and hygienic phases, with particular stress on prevention and control of occupational hazards will be intensively discussed.

LOUISIANA GYNECOLOGICAL AND OBSTETRICAL SOCIETY

The annual meeting of the society took place in New Orleans on Saturday, April 20. A series of dry and operative clinics was given at Charity Hospital, following which scientific papers were presented at the Hutchinson Memorial Building. Among these was the presentation of Dr. D. I. Hirsch, of Monroe, on "An Unusual Gynecological Experience"; Dr. Earl C. Smith, of New Orleans, had as his subject "The Clinical Management of the Climacteric and Menopause Syndrome"; Dr. W. F. Guerriero, of New Orleans, spoke on "Non-bloody Vaginal Discharges"; Dr. M. L. Stadiem, of New Orleans, spoke on "Inversion of the Bladder"; the last presentation was a motion picture in color, "Pregnancy Complicating Fibroids," by Dr. G. A. Mayer, of New Orleans. At the annual banquet, Dr. Wendell McL. Long, of Oklahoma City, delivered an address on "The Treatment of Carcinoma of the Cervix."

NEW ORLEANS ACADEMY OF SCIENCES

Section D: Medical Science, under the Chairmanship of Dr. Julius L. Wilson, met with the New Orleans Academy of Science, March 29-30, at their eighty-seventh annual meeting. On the program were the following: Dr. G. W. McCoy, who spoke on tularemia; Dr. W. A. Sodeman discussed the causes and prevention of heart disease; Drs. A. E. Casey and Branch J. Aymond presented a geographic distribution of poliomyelitis in Louisiana. The last speaker on the program was Dr. C. G. Collins, whose subject was entitled "Stilbestrol, a New Synthetic Estrogen."

NEWS ITEMS

Dr. Willard R. Wirth spoke on "Angina Pectoris and Coronary Thrombosis" before the Coast Counties Medical Society, Biloxi, Miss., March 6, 1940.

The National Gastroenterological Association will meet at the Hotel Roosevelt, New York City, June 4-6, 1940.

A. M. G. A. GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-sixth annual tournament at Winged Foot Club, Mamaroneck (Westchester County), New York, on Monday, June 10, 1940. Members may tee off from 7:30 a. m. to 2:00 p. m.

SOUTHEASTERN SECTION AMERICAN CONGRESS OF PHYSICAL THERAPY

Increasing interest in physical medicine throughout the South by physicians, hospital workers, nurses and technicians brings to the southeastern states the second annual gathering of the Southeastern Section of the American Congress of Physical Therapy. The success of last year's gathering brings also expanded activities in the form of a two day session which will be held May 20 and 21 at the Atlanta Biltmore Hotel, Atlanta, Georgia. The first day will be given over to an instructional seminar consisting of six important lectures on the more prominent subjects in physical medicine. On the evening of the same day the annual banquet will be held and following it the scientific program will be in-

augurated. The scientific program will continue throughout the second day, the evening's program conducted under the joint auspices of the Congress Section and the Fulton County Medical Society. While no fee will be charged for attendance at any of the scientific sessions, registration for the seminar will be $2.00. Every effort has been made to bring together from various parts of the country leaders in the physical therapy field. This meeting should, therefore, prove of inestimable value to those interested in this newest science. General practitioners in particular should benefit from the seminar and the scientific presentations. Those contemplating registering for the seminar should do so by mail, if at all possible, remitting $2.00 to Dr. Kenneth Phillips, secretary, 1150 S. W. 22 Street, Miami, Florida.

Among the evening speakers will be Drs. Earl C. Elkins, Consultant in Physical Medicine, Mayo Clinic, Rochester, Minnesota; John D. Currence, Assistant Clinical Professor of Medicine, New York Post-Graduate Medical School, Columbia University; N. H. Polmer, Professor of Physical Therapy, Graduate School, Louisiana State University Medical Center; Walter J. Zeiter, Director of Physical Therapy, Cleveland Clinic, and Edgar G. Ballenger, Atlanta, Georgia.

POST-CLINICAL CRUISE

The Post-clinical Cruise of the New Orleans Graduate Medical Assembly, which followed the fourth annual meeting, left New Orleans on Saturday, March 2, for a sixteen day cruise to Havana, Panama, Canal Zone and Honduras, on the American Flag Liner "Santa Marta." The members of the party were Dr. and Mrs. W. T. Andreskowski, Ryan, Oklahoma; Dr. S. R. Cozart, Greensboro, North Carolina; Dr. Miriam Drane, Memphis, Tennessee; Dr. William A. Fuqua, Grandfield, Oklahoma; Dr. and Mrs. Herbert L. Harvey, Casper, Wyoming; Dr. Clothilde Jauquet, New Orleans, Louisiana; Dr. Olafur W. Johnson, Rugby, North Dakota; Dr. Edward P. McGehee, Lake Village, Arkansas; Dr. A. S. Rider, Flandreau, South Dakota; Dr. Robert A. Robinson, New Orleans, Louisiana; Dr. and Mrs. David J. Rose, Goldsboro, North Carolina; Dr. and Mrs. Thomas B. Sellers, New Orleans, and Dr. Julius G. Thomas of Greensboro, North Carolina.

Dr. Sellers, Chairman of the Post-clinical Cruise, arranged for various members of the party to give talks aboard, these talks being followed by general discussions and medical motion pictures. In addition to the program on the boat visits were made to the outstanding hospitals in Havana and the Panama Canal Zone, as well as the United Fruit Company hospitals in Honduras.

ARMY EXPERIENCE FOR PHYSICIANS

An interesting medical corollary to the augmentation of the United States Army during 1940 and 1941 and to the planned large scale Army maneuvers during the spring and summer of 1940 is the broad medico-military experience which a great number of civilian physicians will receive. Medical Reserve officers are being used to augment the entire Army Medical Service, which includes everything from small unit installations to large Station Hospitals, General Hospitals, and hospitals designed primarily for the treatment of specific types of cases.

Physicians under 35 years of age who are desirous of obtaining extended active duty with the Army but who do not hold Reserve commissions are being offered appointments in the Medical Corps Reserve in the grade of 1st Lieutenant, in order to permit them to be placed on such duty. Captains and Lieutenants are at present being offered excellent assignments throughout the continental United States, and it is hoped that authority will be granted actually to permit some officers to go to Hawaii and Panama. In addition to having a new and very busy experience in the practice of medicine, the average officer finds the pay and allowances attractive. The pay and allowances for a married 1st Lieutenant amount to approximately $263.00 a month; for a single 1st Lieutenant to approximately $225.00 a month; for a married Captain to approximately $316.00 a month; and for a single Captain to approximately $278.00 a month. In most cases the above pay and allowances would apply inasmuch as Government quarters are not usually available for officers on extended active duty. In the few instances where Government quarters are available, the amounts would be $40, $60, $60, and $80 less per month respectively. In addition, the officer is reimbursed for mileage traveled from his home to his station, and upon completion of his tour of duty is reimbursed similarly for the travel to his home.

Application for one year of active duty, or for appointment in the Medical Corps Reserve with a view to obtaining one year of active duty with the Army, should be requested at once by a letter addressed to the Commanding General of the Fourth Corps Area, Atlanta, Ga. In addition, the application should contain concise information regarding permanent address, temporary address, number of dependents, earliest date available for active duty, and that internship has been (or will be) completed; and it should be accompanied by a report of physical examination recorded on the Army Form W.D. A.G.O. 63, which may be obtained from any Army station. From the group of Reserve officers placed on extended active duty since August, 1939, over 25 per cent of those within the age requirements of 32 years of age or less for commission in the Regular Army Medical Corps found military service sufficiently to their liking to cause them to take entrance examinations for the Regular Army.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathologic examinations (Part II) for all candidates (Groups A and B) will be conducted at Atlantic City, N. J., from Friday, June 7, through Monday, June 10, 1940.

The annual dinner of the Board will be held in New York City on Wednesday evening, June 12, 1940, at the Hotel McAlpin. Diplomates certified at the preceding days' examination will be introduced personally, and there will be several speakers. All Diplomates of the Board, and others interested in the work of the Board, are cordially invited to attend this dinner.

INFECTIOUS DISEASES IN LOUISIANA

For the week ending March 16, the following diseases were reported by the Bureau of Epidemiology of the Louisiana State Board of Health in numbers greater than ten: 99 cases of syphilis, 62 of influenza, 46 each of pneumonia and pulmonary tuberculosis, 30 of whooping cough, 26 of measles, 21 of cancer, 19 of chickenpox, 18 of gonorrhea, and 14 of scarlet fever. The unusual infectious diseases reported this week included one case of smallpox in Avoyelles and one case of poliomyelitis in Orleans Parish (imported). The twelfth week of the year, which terminated March 23, showed a marked increase in the number of cases of syphilis, 197 being listed. There was a decrease in the number of influenza cases, 14 appearing as contrasted with 62 during the previous week. Other diseases included 56 cases of gonorrhea, 39 of pneumonia, 30 of pulmonary tuberculosis, and 15 of scarlet fever. Four cases of undulant fever were reported from Orleans Parish and two of cerebrospinal meningitis. During the week closing March 30, in order of frequency were reported the following diseases: 81 cases of syphilis, 40 of pulmonary tuberculosis, 32 each of measles and pneumonia, 31 of influenza, 25 of whooping cough, 19 of scarlet fever, 17 of gonorrhea, 15 of chickenpox, and 11 of cancer. A typhus fever case was found in Orleans Parish, with five cases of tularemia, three from Tensas and the other two from Iberville and West Baton Rouge. In the first week of the month, ending April 6, syphilis, as usual, was first in frequency with 110 cases; followed by 45 of influenza, 44 of pneumonia, 38 of gonorrhea, 34 of measles, 31 of chickenpox, 23 of pulmonary tuberculosis, 13 of cancer, and 12 of scarlet fever. This week there were reported from Caddo Parish, under the more remarkable nomenclature, two cases of epidemic dysentery.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reported that for the week ending March 16, there were listed 194 deaths in the City of New Orleans as contrasted with 154 in the previous week. The deaths were divided 125 white, 69 colored and 16 infants under one year of age. For the week which closed March 23, the number of deaths fell about 44, there being 102 white deaths and 48 negro. The total number of deaths in children was 14, a most unusual fact being that the great majority was in white babies, 11 of whom succumbed. For the week which closed March 30, the 139 deaths in the city were apportioned as follows: white, 81; negro, 58; infants, 12, four white and 8 negro. For the week ending April 6, 145 citizens of this city expired, 95 of whom were in the white and 50 in the colored race. Infant mortality showed a total of 14 deaths, equally divided between the two races. It is rather interesting that so far this year, that is in the first fourteen weeks, there have been 472 more deaths in the city than in the year 1939; thirty-six of this increase were in children under one year of age.

PETER ERNEST MAGOUN, M. D.
(1883-1940)

In regular meeting April 11, 1940, at Ferriday, the Concordia-Catahoula Bi-parish Medical Society passed the following minute:

Whereas Divine Province has seen fit to remove from our midst our friend and co-worker, the Concordia-Catahoula Bi-parish Medical Society extends its love and regrets to his family, his friends and to the community whom he has so long and faithfully served.

Dr. Magoun was ever a valued member of our society from the time of its inception, and his absence from our meetings and from our lives will be deeply felt and earnestly regretted.

(Signed) N. L. Sebastian, M. D., Pres.
John Schreiber, M. D., Sec.

JAMES BYRON VAUGHAN, M. D.
(1877-1940)

The many friends of Dr. James B. Vaughan were shocked to hear of his sudden death on April 14. Dr. Vaughan had been sick for a few days with an attack of asthma, a disorder from which he had suffered intermittently practically all his life. His death occurred suddenly, apparently as result of coronary occlusion. Dr. Vaughan for some years was the senior member of the Vaughan-Wright-Bendel Clinic in Monroe. He was already one of the prominent physicians in Monroe when the clinic was organized some few years ago. His breadth of vision and his keen diagnostic acumen helped to make possible the prompt success of this clinic.

Dr. Vaughan was born in Bastrop. He graduated from Tulane in 1901. For a short time he practiced outside of Monroe and then went to this city. He was always active in affairs of the State Medical Society, and in 1932 became one of the Councilors for his Congressional District. He was a man who thought clearly and his advice at the

Council meetings was sagacious and conservative. In his practice Dr. Vaughan was a beloved physician but it is not only his patients who gave to him their respect and admiration but also his colleagues valued him as a man and esteemed him as a friend.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

ANNUAL REPORT OF THE PRESIDENT

This year has been a very happy and busy one for me. Friendships have been made which I shall always cherish. I have had the most loyal and capable family to work with in the Officers, Chairmen and Councilors; and the Past Presidents, Mrs. Fred G. Ellis and Mrs. George Feldner, who came to my assistance with help and advice on many occasions.

My sincere thanks go also to our Advisory Council, Dr. John H. Musser, of New Orleans, and Paul D. Abramson, of Shreveport, and to Dr. Paul Talbot, Secretary of the State Medical Society.

Organization and unity have been our main objectives, for increased membership and harmony are vital to our work. With this idea in mind, I visited practically every Auxiliary in the state: Iberville; Caddo, to which Webster Parish was invited but unable to attend; Ouachita; Second District, comprising Jefferson, St. James, St. Charles and St. John; Lafayette; Rapides; Natchitoches; St. Landry; Terrebonne; Calcasieu, jointly with Jeff Davis and Beauregard; St. Tammany, jointly with Washington and Tangipahoa, and Lafourche, jointly with St. Mary. I was entertained so beautifully, and with such charming hospitality, that I must take this occasion, in behalf of the Auxiliary, to thank these hostess parishes.

Mrs. Erwin L. Gill, our active and competent Organization Chairman, also did some traveling, having covered fifteen hundred miles. She, with the help of our Councilors, organized Beauregard, Terrebonne and Webster parishes and laid the foundation for organization work in several other parishes.

Although we note, with sorrow, the loss of Sabine and Avoyelles parishes in the past year, due to great distances between towns and a very small membership, the three new Auxiliaries bring our number up to twenty organized parishes, and our membership, at the end of the fiscal year, to five hundred and eighty; a substantial gain over last year.

Immediately after taking office last spring, Councilors and Committee Chairmen were appointed.

On May 24, with a full number of delegates and alternates, your President attended the A. M. A. Convention in St. Louis. It was the most inspiring and helpful meeting and a yearly opportunity to all state presidents. This meeting was ably covered and reported by Mrs. Ellis.

On returning home, our program for the year was submitted to the State President, Dr. D. B. Barber, and our Advisory Council and approved by them; new stationery was printed and sent out to all Officers and Board Members; the names of Officers and Chairmen were sent to our State Society President, A. M. A., and Southern Auxiliaries; they were also published in the newspapers and in the September issue of the New Orleans Medical and Surgical Journal. Handbooks and National Bulletins were sent to each Auxiliary and outlines of their duties to the various Officers and Committee Chairmen.

The semi-annual Board Meeting was held on October 26, in New Orleans, with an attendance of twenty-seven.

In November, the S. M. A. Auxiliary meeting, in Lexington, Kentucky, was attended by a delegation from Louisiana, and the District Councilor, Mrs. W. R. Buffington, who reported the meeting.

Briefly summarizing the work of the year,—the various Auxiliaries have held well attended and enthusiastic meetings. All have canvassed their membership to have periodic health examinations and received practically one hundred per cent cooperation. The Auxiliaries have worked with the doctors on anti-tuberculosis and anti-cancer campaigns, and have sponsored various individual philanthropic enterprises including aid to indigent physicians' widows, Red Cross, eye glasses for needy children, layettes, aid for crippled and tubercular children, and other worthy causes too numerous to mention.

The President-elect, Mrs. Roy Carl Young, and four Vice-Presidents, Mrs. H. O. Barker, Mrs. Clifford U. Johnson, Mrs. W. P. Bordelon and Mrs. T. Everett Strain, have been cooperative in organization work throughout the year.

The Recording Secretary, Mrs. Edward C. Melton, has been present at both Executive Board Meetings, taking minutes and duly recording them.

The Corresponding Secretary, Mrs. Charles R. Hume, has sent out notices of Board Meetings, cards to Delegates and Alternates, and has written approximately two hundred and fifty letters. I think the Auxiliary, as a whole, as well as myself, personally, appreciates this enormous amount of work and time so cheerfully given.

Our Treasurer, Mrs. W. R. Buffington, reports total receipts: $549.02; total disbursements, $380.27; leaving a balance on hand of $168.75.

Twelve Auxiliaries reported to the Chairman, Mrs. W. A. Ellender, that they had celebrated Doctors' Day with newspaper editorials, flowers to the doctors, dinners, suppers, and banquets in their honor, greeting cards, and donations to worthy causes given in their memory.

Mrs. M. C. Wiginton, Exhibit Chairman, has asked each Parish Auxiliary to exhibit at the State Convention. She has made a wonderful poster for National, bringing out the major projects of the Auxiliary and also typifying the unity that prevails between the Medical Society and the Auxiliary.

Our able Chairman of Press and Publicity, Mrs. Edgar Burns, reports publicity given to our state appointments in the Medical Journal and newspapers. The Journal has printed reports of the State, A. M. A., and the Southern meetings, also lists of their Officers; various local Auxiliary news items; report of the National Legislative Chairman, Mrs. A. A. Herold, of Shreveport; report of educational work in regard to tuberculosis by Mrs. H. B. Gessner, of the Orleans Parish Auxiliary. In regard to public relations, a letter was sent to the Presidents of all Parish Auxiliaries, urging them to hold open meetings, inviting outside guests when the subject of state medicine would be discussed by a doctor qualified to do so; suggestion made by State President, and letter by Mrs. F. Creighton Shute, Public Relations Chairman. Her news columns in the Journal have helped bring us closer together and have stimulated interest.

May we take this opportunity to thank the Editors of the New Orleans Medical and Surgical Journal for allowing us space each month?

Our Finance Chairman, Mrs. H. W. Kostmayer, has an interesting report. A larger reserve fund this year, plus a balance from my budget, allows her more margin in planning our expenditures for next year.

Mrs. Joseph Bath, Historian, has our beautiful History Scrapbook up to date.

Hygeia Chairman, Mrs. A. G. McHenry, reports seventy-eight subscriptions to Hygeia. Honorable mention was given Iberville and Washington parishes, among those who had reached or gone over their quota in the National Hygeia Contest. Hygeia has been put in schools, doctors' offices and libraries. Auxiliaries have sponsored school essay contests with subjects taken from Hygeia.

Mrs. Hermann B. Gessner, Chairman of Printing and Supplies, is responsible for the stationery and very attractive and complete Year Book, tangible evidences of her work. The Year Books were mailed to the membership for the first time this year.

Mrs. D. C. McBride, Chairman of Indigent Physicians' Fund, reports two donations to this fund: five dollars from Rapides Parish and five dollars from Calcasieu.

Mrs. T. H. Watkins, Program Chairman, reports sending program suggestions from National to all the Auxiliaries; these suggestions to be passed on by Auxiliary Presidents to Program Chairmen to help them plan programs for each meeting during the year. She also called attention of all members, through each President, to radio broadcasts of "Medicine in the News." Bulletins forwarded from National, calling attention to the meeting of the A. M. A. Auxiliary in June, in New York City, were likewise sent in.

Public Relations work has grown and each Auxiliary is beginning to realize that real work is necessary if the lay public is to be kept informed on subjects vitally interesting to their welfare from the health standpoint. Cooperating with the National Legislative Chairman, the Public Relations Chairman, Mrs. F. Creighton Shute, has undertaken to present to the women of the Auxiliary, for study, the present conditions in regard to socialized medicine. Many of our prominent doctors have given lecture courses on the subject to Auxiliary members, and talks sponsored by Auxiliaries to lay groups.

Mrs. F. Creighton Shute, Public Relations Chairman, sent the various Auxiliaries objectives offered for special consideration during 1939-40, as follows:

1. To acquaint the public with means of acquiring authentic information on health:
    a. To present the attitude and aims of the A. M. A. on national health issues.

Twelve parishes were active in public relations: two held essay contests on health subjects in schools; six publicized radio health programs; four medical speakers' bureaus; eight disseminated literature on health education; five had clipping files of newspaper and magazine articles on questions pertaining to the medical profession; three had book reviews on health education; seven had public relation programs for lay groups as outlined in the national program. Efforts were centered on explaining the attitude and aims of the A. M. A. toward the Wagner Health Bill.

As the doctors have not asked us to participate in any legislative matters, Mrs. Clarence Lorio, Chairman, has no report. However, every Aux-

iliary has stressed having each member a qualified voter.

At our last State Meeting, Past Presidents' pins, and a President's pin, to be worn while in office and then passed on to her successor, were decided upon.

So, now it becomes my duty and pleasure to present this pin to Mrs. Young with my best wishes for continued success in furthering the high ideals and ambitions of our splendid organization.

(Signed) Mrs. S. M. Blackshear, President.

A. M. A. CONVENTION

A last reminder to make your reservation for the eighteenth annual convention of the Woman's Auxiliary to the American Medical Association to be held at the Hotel Pennsylvania, New York City, June 10-14, 1940. New York has much to offer aside from the convention and we are sure you will not want to miss the opportunity of visiting New York this year.

Respectfully submitted,

Mrs. Edgar Burns,
Press and Publicity Chairman.

BOOK REVIEWS

Your Community, Its Provisions for Health, Education, Safety, and Welfare: By Joanna C. Colcord, Director of the Charity Organization Department of the Russell Sage Foundation. New York, Russell Sage Foundation, 1939. Pp. 249. Price $.85.

A guide for the study of community resources to determine what facilities are available for the promotion and maintenance of health, education, safety, and welfare. It was prepared for use primarily by members of civic and educational clubs and associations or for high school and university students. It is not intended for technical surveys but to enable intelligent citizens to obtain a well rounded picture of their community. In the author's own words, "The book outlines a descriptive and not an evaluative study. It is realized that intelligent people must inevitably form judgments about what they see and learn; but asking definite questions about adequacy or efficiency of operation has been avoided. In order to appraise performance, it would be necessary to have comprehensive knowledge, first, of the various standards of excellence that have been developed in any given field, and second, of how far those standards have been found practicable and applicable in other communities of the same or similar size. When standards are available in published form, reference has been made to them so that the inquirer who wishes to take the initial steps in evaluation can have some base-lines from which to proceed. An evaluative study ought not to be undertaken, however, without the close direction of a person trained and competent to make community studies in specialized fields." Its purpose is to reveal gaps and uncovered areas in community equipment, health and welfare needs of a community with which no existing agency seems prepared to deal or overlapping without clear delimitation of function between agencies.

The areas covered are provisions for dealing with crime; public safety; workers, wages, and conditions of employment; housing, planning, and zoning; health care, handicapped; education; recreation; religious agencies; public assistance; family welfare; child care; foreign-born and racial groups; clubs and associations; agencies for community planning and coordination. In addition to a comprehensive list of references, there is a list of agencies and associations, largely national in scope, which are interested in the various fields and which would be able to furnish pertinent material to those undertaking a study of any of these community services.

In each chapter the outlines are broken down into groups of questions covering the various topics, giving sources from which information might be obtained and referring the inquirers to references on these points. Each outline is preceded by a brief, general explanation of important points to be covered and factors involved. Suggestions are given for the organization and use of material. The material is set up with cross references to related subjects so that a single chapter may be used when the inquiry is restricted to a single phase of community life. The questions are designed to cover what services are found in the best equipped communities but they must be applied to the practical setting of the community in which the study is to be made.

Of special interest in the medical field are the three chapters covering provisions for health care, distribution of health care and provisions for the handicapped. For a study of the provisions of medical care, the outline includes questions on the water supply, sewage and refuse disposal, the smoke nuisance, milk and food supply; mortality and morbidity rates; medical personnel, hospital facilities, outpatient facilities and the public health authority; services to mothers and infants, school children and persons having communicable or noncommunicable diseases; aids in planning the community's health program; agencies for and methods of informing the public about health.

The questions are specific and clearly stated and should greatly facilitate the study of community services in any of the areas covered. Intelligently used, it is of considerable value in directing efforts

of this kind along constructive lines. The author is clearly conscious of the limitations within which these outlines should be used and endeavors throughout the book to present the material so that it will be used as it is intended. One might question the wisdom of setting up outlines for studies of this type for the use of the "intelligent citizen" on the ground that it encourages him to inquire into things about which he knows nothing. However, since it is the citizen who finances and, in a large measure, participates in the planning of community services, should he not be informed on accepted standards and the facts within his own community so that his activity in these community matters may be intelligent? Civic groups will and should inquire into the provisions for community services. It is essential, therefore, that a sound guide for these inquirers be available for their use. Miss Colcord has made a real contribution in providing such a guide.

JULIA MAE MAGRUDER.

Whence, Whither, Why: By Augusta Gaskell. New York, G. P. Putnam and Sons, 1939. Pp. 312. Price $2.50.

The reader of this book should have a comprehensive knowledge of the physical sciences, the biologic sciences, the social sciences, the world religions, and the thoughts and conclusions of the past and present philosophers. Perhaps it should be stated that this volume is best studied and not read.

Ever since man has existed as a thinking being he has had a longing to understand himself, the universe in which he lives, his universe as contemporaneously known and its relation to that universe. Philosophers have attempted to answer many questions on the basis of factual knowledge whenever possible, but where factual knowledge was either inadequate or lacking, then an explanation was attempted on the basis of intuition, faith and mysticism.

As factual knowledge has increased, particularly during the last few centuries in the physical and biologic sciences as a result of scientific research, a very few of these questions have been answered satisfactorily. Although many new facts have been accumulated and integrated into hypotheses and theories, many fundamental questions remain unanswered.

The reader who will approach this book with an open mind will find it interesting and stimulating. The author deliberately tries to avoid being dogmatic. This book is valuable as the record of an individual who is sincere in her search for truth. She is both a realist and an idealist; a realist in that in the formation of her philosophy she starts with present day knowledge in its various branches; an idealist in that she does not hesitate to draw conclusions that are far beyond factual scientific knowledge.

A single sentence on page one of the book gives, by inference, the tone of the whole volume: "Ultimately, every thinking man has his own philosophy, which, however, rarely is the result of his own thinking, but generally is found by him ready-made; the one most convenient to him, which he adopts and parades much as he does a suit of ready-made clothes."

Such a work should be kept close at hand, reading a page or two, or a paragraph as the opportunity presents itself. Browse about in it to compose your mind at night and to arouse it in the morning. It gives ferments rather than recipes and requires study to extract the seeds of thought contained within. To the inquiry as to the value of such a volume, I would reply taste it, try it for yourself.

WARREN H. HÉBERT, M. D.

Cancer of the Larynx: By Chevalier Jackson, M. D., Sc. D., LL. D., F. A. C. S., and Chevalier L. Jackson, A. B., M. D., M. Sc. (Med.), F. A. C. S. Philadelphia and London, W. B. Saunders Company, 1939. Pp. 309. Price $8.00.

This beautifully illustrated and well written volume of 309 pages presents the considered experience of the Jacksons, father and son, with cancer of the larynx. It is worthy of careful study by any laryngologist or surgeon concerned with the care of patients with cancer of the larynx. It is an invaluable source of information to those of us on whom devolves the responsibility of making an early diagnosis of cancer of the larynx. On this early diagnosis rests not only the victim's opportunity to be relieved of his malady but also the magnitude of the surgical undertaking to that end. The patient with an early cancer of the vocal cord can have his cancer out and his larynx saved by laryngo-fissure. The patient with more advanced but still intrinsic cancer, may yet be saved by laryngectomy, but with the loss of his larynx. The patient with more advanced laryngeal malignancy is doomed to palliative treatment and death in its rudest form. And this death could have been avoided if diagnosis and appropriate treatment had been instituted at the proper time.

In these pages the Jacksons tell us what to do and when to do it. Diagnosis, laryngo-fissure, laryngectomy in its various technics notably the narrow field operation, radiation and the unfortunately too often required palliative treatment, are all thoroughly covered.

An extensive and very interesting section is devoted to the history of the treatment of laryngeal malignancy.

H. L. KEARNEY, M. D.

Diseases of the Foot: By Emil D. W. Hauser, M. S., M. D. Philadelphia and London, W. B. Saunders Company, 1939. Pp. 472. Price $6.00.

Dr. Hauser has undertaken a comprehensive

review of all types of foot troubles for the benefit of the student, general practitioner and orthopedic surgeon. The opening chapters on anatomy, embryology and physiology, which are both interesting and instructive, form a medical background for a review of the diseases and injuries of the feet which follow. Whereas the chapter on examination of the feet is very good, it would be more complete if it included a discussion of gait and placement of the feet.

The succeeding chapters on the foot of the growing child, pes valgoplanus, the treatment of orthopedic conditions of the toes, accessory bones of the foot and disturbances of the heel present a clear conception of the author's analysis of these conditions and his plan of treatment. Other forms of therapy are not discussed, but occasionally the author condemns certain lines of treatment. The bibliographies which are appended to each chapter cover certain articles and texts dealing with other recognized treatment of similar conditions but are not at all complete.

In his effort to make this text a comprehensive review of all diseases and injuries affecting the feet, the author has included chapters on arthritis, the various deformities associated with infantile paralysis, club feet, acute and chronic pyogenic infections, bone tumors, skin diseases and fractures and dislocations. The chapters on congenital deformity, infantile paralysis, fractures and dislocations, pyogenic infections and tumors could have been omitted without detracting from the book since they cannot be complete enough to supply sufficient information on these subjects. The student and practitioner alike who would acquaint himself adequately with these subjects must necessarily search elsewhere in articles and texts on orthopedics and on fractures.

The book, which is clearly written and well illustrated, is a valuable addition to the subject of diseases of the foot only in so far as it represents the author's analysis and treatment of these conditions.

GUY A. CALDWELL, M. D.

Endocrine Gynecology: By E. C. Hamblen, B. S., M. D., F. A. C. S. Springfield, Ill., Charles C. Thomas, 1939. Pp. 453. Price $5.50.

This monograph is extremely well written. The illustrations are excellent, the bibliography voluminous, and the index very complete as to author and subject matter. The author has divided his monograph into three parts. In part one, he fully discusses all the hormones of the glands of internal secretion, special emphasis being placed upon the sex hormones of the pituitary and ovary.

In part two, the physiology of menstruation, abnormal bleeding, puberty, and the menopause are discussed in detail and in a style which is extremely clear.

In part three, the diagnostic procedures used in endocrine gynecology are presented and then evaluated fully. In this section disturbances of the glands of internal secretion in the female, the treatment of these disturbances, and results obtained by treatment are discussed fully.

This volume is so replete with the author's personal experience and the results of his extensive investigative work that it is heartily recommended to all medical men.

CONRAD G. COLLINS, M. D.

Non-profit Hospital Service Plans: By C. Rufus Rorem, Ph. D., C. P. A. Chicago, American Hospital Association, 1940. Pp. 130.

This is an authoritative publication on non-profit hospital service plans by one who is fully acquainted with the subject. It should be of particular interest to those physicians who are interested in the economics of hospital administration.

J. H. MUSSER, M. D.

PUBLICATIONS RECEIVED

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